Long Horsley 45-

Samuel Gist Gist.

Over the greater part of Wales, for example, there are races of wild diminutive Sheep, which, in economical value, bear no comparison with those which could be supplied from other mountain districts. In Kerry, and other mountainous districts stretching along the western coast of Ireland, in place of such Sheep as the country could maintain, are to be seen assemblages of animals of the size of dogs, and as wild as antelopes, neither having wool fitted to the manufactures of the country, nor being capable of fattening to any size. Even in the heart of Yorkshire, as we shall see in the sequel, a breed of Sheep is preserved, covering a considerable tract of country, which, from its coarseness of form, and inaptitude to fatten, ranks in the lowest class of cultivated Sheep in England; and in every part of the kingdom we may see examples of the vast public and private loss which results from ignorance of the relative value and economical uses of the different breeds of our domestic animals.

To remove the causes of mistaken practice, in a branch of industry so important to the interests of producers and consumers, may be regarded as a national object. From the produce of live-stock in this country, a large part of the subsistence of the people, of the materials of our manufactures, of the profits of the farmer, and of the revenue of the landholder, is derived. Over a great part of the kingdom tillage is difficult or impracticable, and the only valuable production is live-stock; and it is not too much to assert, that half the rental of the British Islands is derived from this source. These considerations will make it appear, how much the study and advancement of this department of rural economy merits the attention of those who seek to widen the channels of native industry.

Impressed with a feeling of the advantages which would result from a correcter knowledge of the character of the various races of our domestic animals than any written description can convey, I, several years ago, formed the design of a public Agricultural Museum, comprehending, amongst the other necessary objects of such an institution, a complete collection of Paintings, illustrative of the various races of our Domestic Animals. I submitted the plan to his late Majesty's Government, Lord Althorp, now Earl Spencer, being then Chancellor of the Exchequer. The measure obtained the sanction of this distinguished Nobleman, whose enlightened attention to every branch of rural improvement is every where known and appreciated. A Grant was made, from a public fund in Scotland applicable to the purposes of general improvement in that country, for founding an Agricultural Museum in connexion with the University of Edinburgh. This grant, though it could not complete the design, was sufficient to lay the foundation of the extensive collection which has been subsequently formed. It is from this collection, which is still in progress, that the materials for the present work are derived, and from these such a selection will be made, as will fulfil the purpose of illustrating the most important and characteristic races of the country.

January 1. 1840.

Drawn by W. Nicholson, R.S.A. From a Painting by M^r. Shiels, R.S.A.

Drawn on Stone & Printed by Eastland.

THE ARABIAN.

Stallion, taken in a skirmish with an Arab Tribe, brought to England by Sir John M^c. Neill, British Ambassador at the Court of Persia.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published December, 1840, by Longman, Orme, Brown, Green & Longmans, Paternoster Row, London.

THE DEVON BREED.

PLATE X.

BULL, aged Two Years and Nine Months, bred by JAMES DENNY, Esq., Egmoor, County of Norfolk.

On the southern side of the Bristol Channel extends the country of the ancient Damnonii, comprehending the present counties of Devon and Cornwall. Much of this tract resembles Wales in its aspect and geological characters; and like Wales it afforded in a former age a refuge amongst its mountains, rocks, and fastnesses, for the Celtic Britons. In this country we find the remains of the same older breeds of cattle which yet exist in the Welsh mountains, modified by the effects of a lower altitude and more temperate climate. In the county of Cornwall to the westward, the old breeds of cattle resembled those yet existing in the mountains of Wales, although they have been long so mixed with other races and with one another, that it is difficult to assign to them any distinctive characters. But farther to the eastward, and occupying the high lands of Devonshire on the Bristol Channel, is a peculiar variety of cattle, distinguished by such a common resemblance of properties and form as to render it one of the best-defined breeds of the British islands. It is usually termed the Devon breed, and sometimes the North Devon, from its being found in the greatest purity in the northern division of the county. These cattle have been extended very widely, but their peculiar district is the northern slope of Devonshire, extending from Barnstaple eastward beyond the river Exe.

The true North Devons are to be classed with the breeds of the higher country. They exceed a little in weight the hardier and more muscular Pembroke and West Highland cattle; but they fall short of the Long-horned, Hereford, and other varieties of the lower plains. Their general form is light and graceful; their skin is of an orange-yellow colour; and they are distinguished by having the hair of a bright red, and by their eyes being surrounded by a ring of the colour of the skin. The nose is likewise of the same colour, and the inside of the ears is orange-red. Their horns are of medium length, very fine, and bending upwards in the manner of the Wild cattle of the parks. Their skin is unctuous and soft to the touch, and the hair is fine and tending to curl, like that of other cattle inhabiting a humid climate. The neck is long and the chest with little dewlap. The shoulders are oblique, the hoofs and bones of the extremities are small, the limbs are slender and long, the chest is only of moderate width, the back is long, and the distance large between the last asternal rib and the pelvis. These are the most marked characteristics of the true Devons, taking as the type of the breed the variety proper to the elevated district of North Devon. As we recede from this centre the size and form of the animals deviate more or less from the pure type. In the countries of richer herbage they become enlarged in size, and lose somewhat of the delicacy of shape which they exhibit in their native pastures. They appear to be of that variety of the ancient cattle which were valued for their white colour and the peculiarity of their red ears.

The females of this race are small as compared with the bulls and oxen, deficient in the power of yielding milk, and tending to run soon dry. Nevertheless the milk is very rich in cream, and of a fine yellow colour, on which accounts many prefer the Devons for the domestic dairy to other races whose milk is more abundant. The flesh of the cattle is juicy and tender, and tolerably well mixed with the muscular parts. The fat has a peculiarly yellow tinge corresponding with the colour of the integuments; but this is not regarded as an imperfection in those markets where the principal beef is the Devon, and where the eye is reconciled to this peculiarity in the colour of the fatty tissue.

The Devon cattle are gentle, agile, and above all our races adapted to active labour. Their shoulders have that obliquity which enables them to lift freely their fore extremities; and their quarters behind are relatively long, which is a character connected in the Ox as in the horse with the power of active motion. Their bodies too are light, and their limbs long, muscular to the hock and knee, and below these joints sinewy. These cattle, then, although wanting in the power of heavy draught which the larger Oxen can exert, have the faculty of muscular exertion in a higher degree. They trot well in harness, and will keep pace with a horse in the ordinary labours of the farm. They are largely employed throughout the county of Devon for the purposes of labour, usually four together, and mostly attached by the yoke and not by the collar. The team of the labouring Oxen in this beautiful county is one of the charms of the rural landscape. A boy accompanies the ploughman and his team to drive the Oxen. He chants continually a simple melody in low notes rising to the higher. From morn to night this simple song is heard, the ploughman putting in from time to time his lower notes in happy keeping. The beasts seem cheered by the music, and from hour to hour the team may be observed in motion without a harsh word being uttered by the ploughman or his youthful companion.*

Although the Devon Ox presents a symmetry of parts which pleases the eye, yet his form is not precisely that which the breeder seeks for in an animal destined to fatten quickly and arrive at great weight. His neck is too long, his chest is too narrow,

---

* M. YOUATT, Library of Useful Knowledge.

his sides are too flat, his limbs are too long in proportion to his body, or, in other words, his body is too small in proportion to his height. The Devon Ox is a kindly enough feeder, but he requires good pastures and a somewhat favourable climate, and could barely subsist on food which would suffice to fatten some of the hardier mountain breeds of nearly his own size.

But the defects in the form of the genuine Devons are capable of being removed by the care of the breeder. However long the Devon has been in existence as a separate variety, nothing like care had been bestowed on its improvement in the country which it inhabits until a recent period. Even until several years after the commencement of the last war the breeders of Devonshire seem to have been ignorant that there was any thing remarkable in their native breed; and they appear to have only become aware of its importance and the profit of improving it by the demand which arose in other districts. Since the beginning of the present century, however, the breed has received its full share of public attention. Many eminent breeders in different parts of the country have adopted it, and by selection of the parents, and enlarged supplies of food given to the animals when young, have succeeded in imparting to it properties which it had not acquired in its native district. The figure in the Plate exhibits the Devon Breed brought to a great degree of perfection. Retaining the general characteristics of the race—its length of neck and body—it will be seen that the too great length of the limbs has been corrected; and that almost all the other points are such as the breeder would approve of in any race of cattle.

But, nevertheless, the Devon Breed, however much the defects of its conformation may be corrected, and however desirous graziers may be to procure it from the district in which it is reared for the purpose of fattening, is not calculated to supplant other breeds to any great extent in this country, when the end is rearing as well as grazing. It does not equal in hardiness some others nearly similar in weight, as the Pembroke, the West Highland, and the Galloway. It falls short, in the weight at which it usually arrives, of the Short-Horned and Hereford Breeds, and will not generally yield so large a return as they will do from the period of birth to maturity, however well it may remunerate the grazier between the periods of buying and selling. Neither is the breed well suited to the bringing up of calves, or to the husbandry of the dairy, in which the profit depends on obtaining a large quantity of milk for a considerable period of the year. For these reasons the breed of North Devon, however greatly it is to be valued, is not now found to extend itself in districts where the richer pastures are found, and where the means exist of cultivating artificial provender. In such situations the larger individuals of the Short-Horned and Hereford races are preferred by those whose purpose is breeding as well as grazing; and we may be well assured that the interests of individuals have conducted them, in this respect, to the course which is most profitable. The Devon Breed, however, must always be held in high estimation over a large tract of country. It will be sought for by those who purchase cattle to graze for a limited period, and sufficient inducement is therefore held out to the Devonshire breeders to preserve the purity of their native race, and to bring it to all the perfection to which, by a careful selection of the parents and liberal feeding of the young, it can be brought. There is no need of exaggerated statements of the superiority of the Devon Breed over others in order to place it in its proper rank. Like the West Highland, the Castle Martin, and the Galloway, it has a high intrinsic value for the grazier; but assuredly it does not surpass, as some of its too eager admirers maintain, other breeds which arrive at greater weight and attain earlier maturity.

The Devonshire breeders adhere scrupulously to the deep red colour of the hair, and reject individuals having a tendency to produce white on the face and the body. This is a merely conventional test of purity and goodness, for certainly white is still more than red the pristine colour of the race, and its appearance ought not to be regarded as a sign of degeneracy. But although the strict adherence to a given colour may limit in some cases the selection of males and females for breeding, it tends in an eminent degree to ensure the general purity of the breed. The deep blood-red colour of the pure North Devons is so peculiar that there is no other race in this country in which an admixture of foreign blood is so easily traced, or which accordingly has remained so free from foreign intermixture. Inasmuch, then, as this limitation of colour ensures uniformity in the typical characters of the race, it is beneficial; and it is not therefore expedient that the agriculturists of North Devon should depart from the standard of the purity of their beautiful breed which has been so long established.

The Devon Breed extends from the northern division of the county into South Devon all the way to the British Channel. Here the red colour characteristic of the purer race becomes less bright, and white frequently appears on the body and extremities, and the animals become enlarged in size, corresponding with the increased fertility of the country, and assume a coarser form. The South Devons, accordingly, are held in far inferior estimation to the variety proper to the higher country for ready fattening; but they are greatly valued in their own district as rising to a good weight, and supplying the larger beef which is in demand at the numerous shipping ports of the coast. For this latter purpose, indeed, the Durhams and Herefords would probably be found better adapted; but if the breeders of South Devon shall continue to prefer the existing race, then surely the means ought to be used to improve it in the degree of which it is susceptible. It is absurd to say, as some have done, that the South Devon breed is bad in itself, and incapable of improvement. The South Devon Breed is only bad because sufficient attention has not been paid, by selection of the parents, to the improvement of the progeny.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairland, 45, St. Johns Square

THE SUSSEX BREED.

Oxen, 6 Years old, bred by Mr. Putland, Firle, County of Sussex.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published April 1841 for Longman, Orme, Brown, Green & Longmans, Paternoster Row, London.

THE SUSSEX BREED.

PLATE XI.

OXEN, Six Years Old, Bred by JOHN PUTLAND, Esq., Firle, County of Sussex.

THE SUSSEX BREED.

PLATE XI.

OXEN, Six Years Old, Bred by JOHN PUTLAND, Esq., Firle, County of Sussex.

The North Devon Breed of cattle, it has been seen, inhabits the elevated district on the southern side of the Bristol Channel, and is manifestly derived from the older race which inhabited the same country. In passing from the greywacké district of Devonshire into the calcareous country to the eastward, comprehending the greater part of Somersetshire and the counties of Dorset, Wilts, Berks, and Hants, the Devon Breed ceases to appear, or, if found, is manifestly not indigenous to the districts, but derived from those to the westward. It reappears, however, in the county of Sussex, a portion of which differs entirely, in its geological characters, from the districts with which it is in contact. The Weald of Sussex, or, as it is termed by geologists, the Wealden, is believed to have been a deposite from some vast river flowing from a continent no longer existing in its former state, and long accordingly before the historical era, and before the island of Britain had assumed its present form. This stream of fresh water appears to have formed at its mouth a delta like that of the Ganges, the Nile, and other great rivers, washing along with it numerous animals whose remains exist, and testify to the living generation the prodigious revolutions which this globe has undergone in its physical constitution and animated inhabitants. Amongst the amazing monuments of a former age which this remarkable delta presents, is a reptile which fed on herbage, and which, from the measurement made of its bones, appears to have been upwards of seventy feet in length; and there are found, too, the remains of numerous other species, not one of which now inhabits the earth. The Wealden forms part of Sussex and extends into Kent, and is distinguished by its surface being a tenacious clay, entirely distinct from the chalky soils which surround it. In latter ages this tract became covered with dense forests, and is yet remarkable, beyond any part of England, for the number of noble trees which it produces. "The hithermore and northern side thereof," says CAMDEN, in describing this part of Sussex, "is shaded most pleasantly with woods, like as in times past the whole country throughout, which, by reason of the woods, was hardly passable. For the wood Andraswald, in the British language Coid Andred, taking the name of Anderida, the city next adjoining, tooke up in this quarter a hundred and twentie miles in length and thirtie in bredth; memorable for the death of Segibert, King of the West Saxons, who being deposed from his roiall throne, was in this place stabbed by a swineheard, and so died." Long after the Romans landed in Britain the Wealden continued to be a vast thicket of wood, in which the persecuted natives sought refuge, and it abounded with the Uri Sylvestres and other wild animals of the island even until the times of the Norman princes. This, then, is a part of the country in which we might look for the preservation of ancient races of the domestic animals; and accordingly it is found that the same race of cattle which exists in the mountains of North Devon yet survives in the Wealden.

The breed of the Wealden is usually termed the Sussex Breed, from its being chiefly reared in that county. It possesses all the essential characters of the Devon Breed, but more resembles the variety of South than of North Devon, being reared in a country which affords larger supplies of artificial food. It is accordingly of larger size than the North Devon, and of coarser form. It has not, perhaps, been preserved in the same degree from foreign intermixture as the North Devon; yet it is a very pure breed, and exhibits as great a uniformity of characters as almost any other in the Island.

The Sussex is to be ranked amongst the larger breeds of the country. The skins of the individuals are covered with short hair, but have not usually the same unctuous feel which so eminently characterizes that of the true North Devons. Their horns are longer, approaching in this respect to the character of the Long-horned varieties of the central counties. Their shoulders are thick; and their legs, though moderately short, have not the fineness of bone which is distinctive of the North Devons; nor have they the same length of body and elegance of general form. The distinctive colour is red, but of a less florid shade than in the North Devons; and often it is mixed with white on the face and body. The cows are restless, eminently deficient in the faculty of yielding milk, and scarcely ever used accordingly for the regular dairy. They are likewise small as compared with the males, a character which seems to be common to all the members of the group with which they are associated, and which always indicates a deficiency in the milking properties of the females of a race of cattle.

The practice of employing oxen in the labour of the farm is universal in the county of Sussex; and the native breed is eminently suited to this purpose, combining weight of body with a sufficient degree of muscular activity. For the purposes of labour, indeed, the Suffolk Breed is equal, if not superior, to any in the kingdom. It has more action than the Hereford, and more

physical strength than the Devon; and is superior to the Long-horned varieties for a combination of activity and strength. The employment of oxen for labour prevails all over Sussex, but chiefly in the stiff soil of the Wealden. The animals are usually worked four, and sometimes six and even eight together; and heifers as well as oxen are employed. They are broken to the yoke at three years old, worked usually until the age of five or six, and then they are fattened for the butcher. The employment of oxen in the labours of the farm is recommended by certain apparent advantages, which has led to some erroneous conclusions with respect to the extent to which these animals may be profitably employed in the ordinary business of the farms of this country. The Ox is reared to the age of labour at less expense than the Horse, his subsequent charge of maintenance is smaller, he requires less of care and attendance, and at a certain age, when unfitted for labour, he can be fattened; whereas the horse declines in value soon after his prime, and ultimately becomes useless. On the other hand, the Ox, although well suited for a slow and steady draught, such as the plough demands, is not so well adapted as the Horse for active motion, for distant journeying, or for those sudden and unequal exertions which the varied labours of a modern farm require. When oxen, too, are employed largely on the farm, and disposed of after two or three years' labour, there is a continued recurrence to the training of young oxen for the yoke, by which means time, so necessary to be economised on a well-ordered farm, is lost in a degree which does not occur when horses are the beasts of labour. Even in those parts of the country where the working of oxen is the most largely practised, and where the breeds of the country are the best adapted for the purpose, few farmers attempt to cultivate their farms by oxen alone: they employ horse-teams in at least equal numbers; thus showing, by their practice, that, even under circumstances the most favourable to the employment of this kind of draught, the Horse possesses certain qualities in which the Ox is deficient, and that at best the use of oxen can only be subsidiary to that of horses on ordinary farms. The use of oxen has invariably declined in those parts of the country where improvements are the most extended, and where the most active system of farm-labour has been established; and now it may be said, that the general use of oxen is confined to those parts of the country where the peculiar races of cattle suited for labour are reared. In all the districts where the Short-horned Breed of cattle is established, the employment of oxen in labour is almost unknown; and, in all the districts where the active labour of the turnip-culture is largely practised, the Horse is almost exclusively made use of. Indeed, it may be said, that this is an arrangement indicating an advanced state of agriculture. By means of it the two kinds of animals are employed for the purposes to which they are, respectively, the best adapted—the Horse for active labour, the Ox for being reared the most quickly to that maturity which fits him for human food. It is with the especial view of directing attention to this result that these remarks are made. The principle of breeding, when applied to an animal to be fattened, is to develope those properties which have relation to the earliest maturity of muscle and fat; and the principle of fattening is to supply to the animal the largest quantity of nutriment from his birth to maturity, which consists with the preservation of his health, or which the means of feeding at our command may allow. But these principles cannot be fully applied when the oxen of the farm are to be employed for labour. The external form which indicates the fitness of an animal for the exertion of its physical powers is different from that which indicates its adaptation to the purpose of early fattening; and hence the general employment of oxen in tillage is unfavourable to due attention to another class of properties, while it does not admit of that continued feeding from the birth which brings the animal soonest to the maturity required. Reasons, then, it will be seen, exist for confining the use of oxen for labour within certain limits, and of not extending the system to parts of the country where breeds of animals unsuited to the purpose are now reared, or where a different system of agriculture is established.

The Breed of Sussex has, like every other, had its warm admirers as well as its too prejudiced opponents. If it has not obtained that favour which has been sufficient to cause its extension to other parts of the country, this has not been because the breed is naturally bad, but because the same attention has not been employed in calling forth the properties now most generally valued in a race of cattle. It is not until a period comparatively recent, that much general attention has been paid to the improvement of the Sussex Breed, with respect to symmetry and early maturity. Latterly, however, great attention has been paid to these properties. Various eminent breeders have employed the usual means for correcting the defects of the existing race; and at the present time numerous admirable oxen are derived from this county to supply the larger markets with which it is in communication. The eminent Breeder from whose stock the specimens in the Plates are taken has long directed attention, with merited success, to the improvement of the Sussex Breed. The animals represented are shown just as they were taken from the plough, and when kept on the common food supplied to working oxen.

Plate XII.

Drawn on Stone & Printed by Fairland 45, St John's Sq

Drawn by M. N. Nicholson R.S.A. from a Painting by Mr Shiels, R.S.A.

THE GLAMORGAN BREED.

Cow, 5 Years old, bred by Mr Bradley, of Treguff Place, in the County of Glamorgan.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published April 1844, by Longman, Orme Brown Green & Longmans, Paternoster Row, London

THE GLAMORGAN BREED.

PLATE XII.

COW, Five Years Old, bred by EDWARD BRADLEY, Esq., Treguff Place, near Cowbridge, Glamorganshire.

The county of Glamorgan is a district of the coal-formation situated on the Bristol Channel. In its geological characters it differs entirely from the elevated parts of Wales, with which it is in contact. Towards the north it consists of mountains, producing a coarse herbage of grasses, largely mixed with sedges, rushes, and other innutritious plants; its central part is less elevated and more productive, but still chiefly adapted to pasturage; its southern division lying on the coast, and extending from six to ten miles inland, forms a fine undulating vale mostly on a substratum of carboniferous limestone. From time immemorial this part of Wales has been distinguished for the production of numerous herds of cattle. "The air," says SPEED, "is temperate, and gives more content to the mind than the soile doth fruit, or ease unto travellers; the hills being high and very many, which, from the north notwithstanding, are lessened as it were by degrees; and towards the sea-coasts the country becometh somewhat plain, which part is the best, both for plenty of grain and populous of inhabitants. The rest, all mountain, is replenished with cattel, which is the best means to wealth which this shire doth afford; upon whose hills you may behold whole herds of them feeding; and from whose rocks most clear springing waters through the valleys trinkling, which sportingly do pass with a most pleasant sound—."

The cattle of Glamorganshire, naturalized in a tract of country differing somewhat in its vegetable productions from the higher parts of Wales, have assumed a class of characters proper to themselves. The colour of the hair, like that of the Devons, tends to red, in place of the black characteristic of the races of the higher country; but the skin possesses the same orange colour which distinguishes the Pembroke and allied breeds, manifesting an identity of origin in these races. It has been imagined by some that the peculiarities of the Glamorgan breed are due to foreign intermixture, and this has been referred to so remote a period as the age of WILLIAM RUFUS, when certain Norman knights seized violently upon the country, and partitioned it amongst themselves and their retainers. But this country possessed its native cattle long before the Normans had acquired a footing in it, and the pursuits of these barbarous soldiers were far other than the improvement of flocks and herds. Rapine, the chase, and warlike exercises occupied their thoughts, and the occupations of peaceful industry were left to their dependants, too ignorant and oppressed to think of any thing beyond the rude wants of their condition. In such a state of society the improvement of breeds of cattle, by foreign importations, could scarcely take place. Approaching nearer to our own times, when freedom of intercourse between different parts of the country was established, it may be supposed that cattle from other districts found their way into Glamorganshire, but not in sufficient numbers to obliterate, or change essentially, the characters of the native cattle. These, from some old notices, seem to have been of a reddish colour. A Welsh writer, upwards of a hundred years ago, describes the Cows as being of large size, some red and some pied; which sufficiently agrees with the aspect of the present breed, whose colour is a dark reddish-brown, broken with white. Within the last forty or fifty years indeed, various attempts have been made to improve the cattle of Glamorganshire by crosses with the Herefords, Devons, and other breeds; but still the essential characteristics of the native race remain sufficiently distinct and uniform to constitute a well-defined breed.

The breed of Glamorganshire differs in the size of the individuals, according as they are the natives of the hilly parts of the country, or of the lower and maritime. The breed, however, is essentially the same in both districts, and varied only by the condition of the country, and the care with which the animals have been selected and reared. In the higher country, where their food is the rough herbage of mountains, the cattle are in a corresponding degree small, but coarse and robust in form, active like other mountain cattle, but slow in arriving at maturity. In the Vale, where the herbage is fine, and the means exist of cultivating artificial provender, the cattle become of larger size, of more developed forms, and having a greater aptitude to fatten readily. The Glamorgans of the lower country fall short of the ordinary size of the Durhams and Herefords; but yet they are of the larger class of cattle. Their horns are small, fine, and pointing somewhat upwards; and in the breed of the hills the horns have yet more of the upright curvature. The skin is generally orange-yellow, and the individuals are most esteemed in which this colour prevails. The hair is dark brown, usually broken with white, and very generally there is a uniform marking of the latter colour extending along the belly and forming a streak along the back. Their chests are well formed, with moderate dewlap, and their beef is excellently marbled.

The Cows are exceedingly good milkers, giving a rich yellow cream. The domestic dairy has always been an important object of attention in this and other parts of Wales, and hence the property of yielding abundant milk has been sought for and obtained in the races of the country. In this respect the Cows of Glamorgan differ essentially from those of Hereford and North Devon, in which the attention of breeders has been directed to grazing, and not to the dairy.

It is an opinion frequently expressed by Glamorgan breeders, that the native breed had been injured by an intermixture of other races. This deterioration is supposed to have taken place after the commencement of the last war; and one of the proofs of it cited is, that the Glamorgan cattle, which had formerly been in great request for grazing, began to lose favour in the districts to which they had before been carried, as in Leicestershire, and other grazing counties. This effect, however, is sufficiently accounted for by the increased attention which had begun to be paid throughout the country to the improvement of live stock, and to the extension of superior breeds. It is less likely that the Glamorgan cattle had been deteriorated, than that the breeders had failed to keep pace with those of other parts of the country. With respect to the presumed mixture of other blood, this has probably been as little in Glamorganshire as in most parts of the kingdom. The native farmers appear to have long taken a peculiar pride in their ancient breed, and are at this hour very generally as tenacious of its purity as any breeders can be supposed to be. Individuals, indeed, chiefly in the Vale, have made experiments in crossing, just as has happened in other parts of the country; and insensible mixtures may have taken place with the Herefords and cattle of the neighbouring districts; but that the Glamorgan breed has remained wonderfully pure, especially in the higher country, may be inferred from the uniformity of characters which it has preserved. Various modern breeders, instead of a system of crossing, have, with better judgment, directed their attention to the improving of the breed which their country has for so many ages produced. These improvements have been chiefly carried on in the Vale, where the means are favourable to the rearing of a superior breed of cattle. The result of these experiments has shown that the native Glamorgan affords the basis of a valuable breed, requiring only that the same care and time shall be given to breeding and rearing which must be bestowed in order to bring any race of animals to a perfect state. Many of these improved Glamorgans have been able to contend successfully, with respect to early maturity, symmetry, and even weight, with the Durhams and Herefords; and they are certainly superior to either of these breeds in their adaptation to the dairy. No question, then, can exist, that the breeders of Glamorgan are able to bring the breed of the country to the degree of size, aptitude to fatten, and economical value, which consists with the nature of the district, and the state of its agriculture. The improved Short-horns have, indeed, been largely introduced into the Vale of Glamorgan, as into most other parts of the country where the means exist of supplying them with sufficient food; and there has been a great inducement to cultivate them, seeing that this breed has been already perfected, and that it is found in numbers sufficient to allow any one to obtain and rear it, whereas the finest class of Glamorgans are only as yet in the hands of a few breeders who have made them the subject of especial attention. But, excellent as the imported breed is, this advantage would have resulted from adhering to the older race, that the whole county would have then been occupied by a uniform race; and that from the lower country to the higher superior males might have been carried, so that the cattle of the mountains would have been gradually improved to the degree which was suitable to the nature of the pastures. As it is, this advantage will not be obtained by the introduction of the Short-horns, for these are unsuited to the higher country, and the degree of cultivation which must necessarily exist in it. The cultivators of the superior Glamorgans will find it difficult, in a district so limited, to pursue their improvements in opposition to the extension of another breed, and Glamorganshire will probably present the singular example of having the general improvement of the live stock of the country retarded by the importation of a breed in itself good, and calculated to benefit the individuals who adopt it. But it is the interests of the breeders themselves that must determine the question as to the breeds to be adopted, and it cannot be supposed that considerations founded on general benefit will prevail against private interests. But this the landed gentlemen of the country may do: they may and ought to give all encouragement to the preservation and improvement of that race which is naturalized, which occupies so great a part of the county, and which experience shows to be susceptible of so much improvement. The native and imported breeds should be kept distinct and pure. Besides the Short-horned, the Dairy breed of Ayrshire has been introduced into this district, though it is difficult to see with what aim. The native cattle already possess the qualities of milch cows in a very high degree, and they have this advantage over the Ayrshire, that they are the natives of the country. Individuals may, indeed, if they think fit, possess themselves of an Ayrshire or any other stock, but no benefit could result from mixing these strangers with the native race.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairbairn, &c. Edinr.

THE AYRSHIRE BREED.

Cow, 5 Years old, the property of Mr. Finlay, Lyoustone, Maybole, bred in the upper district of Ayrshire.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London Published October, 1841. by Longman, Brown, Green, & Longmans.

THE AYRSHIRE BREED.

PLATE XIII.

COW, Five Years Old, the property of Mr FINLAY, Lyonstone, Maybole; Bred in the Upper District of Ayrshire.

Of the cattle of these Islands, reared especially for the uses of the Dairy, those of but a few districts present such an affinity in conformation and habits as to be regarded as constituting breeds or families. But the cattle of Ayrshire, which are reared exclusively for the supply of milk, have spread over a large tract of country, and, by continued intermixture with one another, acquired such a community of characters as to form a distinct and well-defined breed.

The county of Ayr, stretching along the estuary of the Clyde, and the Irish Sea, for about eighty miles, consists in part of moory hills, in part of an undulating surface of common clay, intersected by narrow vales, and in part of a flat tract nearer the coast, bounded towards the sea by a belt of barren sand. The climate is moist, but not intemperate, although the country, like that of all the western shores of Scotland, is too much exposed to the continued winds and humid vapours of the Atlantic. It contains fertile tracts, and presents to the eye picturesque scenes; but throughout it is only of very moderate fertility, and exhibits a far different aspect from those rich and verdant plains of the Severn and the Avon, of the Trent and the Cam, where the largest cattle in Europe can be reared, and the richest productions of the Dairy obtained. And further, the artificial improvement of the country is but as of yesterday, when compared with that of the fertile plains of England. Within the memory almost of the living generation, the agriculture of Ayrshire was in a state of utter rudeness. Its condition at the middle of the last century, and long afterwards, is thus described by eye-witnesses. There was hardly, says Colonel FULLARTON, in his Survey of Ayrshire, a practicable road in the country. The farm-houses were mere hovels, built with clay, having a fire-place in the middle, with an open space for the escape of the smoke, and they were placed in a dunghill. The lands were overrun with rushes and weeds of all kinds. There were no fallows, no green crops, no sown grasses, no carts or waggons, no straw-yards. Hardly an esculent root was raised, nor indeed any garden vegetables, beyond some Scotch greens, which, with milk and oatmeal, formed the diet of the people. There was little straw, and no hay beyond the scanty portion collected from the bogs and wastes. The little dung produced was dragged to the ground on cars or sledges, or on what were called tumbler-wheels, which turned with the axle-tree, and supported the wretched vehicle scarcely able to draw five hundredweight. The ground was scourged with successive crops of oats after oats so long as it would pay the seed and labour, and afford a small surplus of oatmeal for the subsistence of the family. It then remained in a state of absolute sterility, and covered with thistles, until rest again enabled it to produce a scanty crop of corn. The rent was generally paid in kind, on the condition of what was termed half labour. The stock and implements were furnished mutually by the parties concerned, or on such terms as could be agreed upon, one-half of the crop going to the landlord as rent, and the other remaining to the tenant, to enable him to maintain his family and cultivate his farm. There being scarcely any enclosures, the horses and cattle were either tethered during the summer months, or intrusted to the discretion of the shepherd and his cur, by whom they were kept in continued agitation, being impelled, through famine, to fly from their bare leas, and commit continued depredation on the adjacent crops. The cattle being starved during winter, were hardly able to rise without assistance in spring, and were never in fit condition for the market. No tenant could command money to stock his farm, and scarce a landlord could raise the means to improve his estate. Such was the condition, not of Ayrshire alone, but of a great part of Scotland, during half the reign of GEORGE III., and down to the times which men yet living can remember. Ayrshire did not surpass, in the course of improvement, districts like itself, but rather lagged behind. Scarcely any thing that deserves the name of agricultural improvement was effected in it until after the disastrous close of the American war; most of what has been done has been done since the commencement of the present century, and much of it within a few years. It is under these circumstances that a race of cattle has been formed and perfected, which, with relation to the purposes to which it is especially destined, ranks with some of the most useful produced in Britain.

Authentic records are wanting to show by what progressive steps the Dairy Breed of Ayrshire has been moulded into its present form. That it was late in arriving at the estimation in which it is now held, is sufficiently known. Mr CULLEY, who wrote his treatise on live stock before the year 1790, does not even mention the Ayrshire as one of the recognised breeds of the country, nor once refer to it in the subsequent editions of his work; and Colonel FULLARTON, in describing the country in which it was found, speaks of it in a manner so general, as to show that he did not regard it as any thing remarkable. The older breed of the country seems to have been one of those varieties of coarse Oxen with horns of a medium length, which formerly occupied all the central mountains south of the Forth, and extended into the plains. Mr AYTON, who published a treatise on the Dairy

THE AYRSHIRE BREED.

Husbandry of Ayrshire in 1825, describes them, from his own recollection, as having been a puny unshapely race, not superior to those yet met with in many of the higher districts. They were mostly, he tells us, of a black colour, marked with white on the face, the back, and the flanks, and few of the Cows yielded more than from one and a half to two gallons of milk in the day, at the height of the season, or weighed, when fat, more than 20 stones. But previous to the period referred to, cattle of other races had been mingled in blood with the native Ayrshire. It is stated, on competent authority, that even so early as the middle of the century, the EARL of MARCHMONT had brought, from his estates in Berwickshire, a bull and several cows which he had procured from the BISHOP of DURHAM, of the Teeswater Breed, then known by the name of the Holstein or Dutch Breed; and mention is made of other proprietors who brought to their parks foreign Cows apparently of the same race. To what degree these casual importations affected the native breed of Ayrshire is not certainly known; but tradition refers likewise to an early importation of individuals of the Alderney Breed to the Parish of Dunlop, which became first distinguished for its Cows and the produce of its dairy. This tradition is almost confirmed by the similarity existing between the Alderney Breed and the modern Ayrshire, which is so great as to lead us, independently of tradition, to the conclusion that the blood of the one has been largely mixed with that of the other. There is the same peculiar character of the horns and colour of the skin; and the general resemblance of the form is so great, that in many cases a Jersey Cow might be mistaken for an Ayrshire one. We may assume, then, from all the evidence which, in the absence of authentic documents, the case admits of, that the Dairy Breed of Ayrshire owes the characters which distinguish it from the older race, to a mixture with the blood of races of the Continent, and of the Dairy Breed of Alderney.

The modern Ayrshire may stand in the fifth or sixth class of British Breeds with respect to size. The horns are small, and curving inwards at the extremity after the manner of the Alderneys. The shoulders are light, and the loins very broad and deep, which is a conformation almost always accompanying the property of yielding abundant milk. The skin is moderately soft to the touch, and of an orange-yellow tinge, which appears about the eyes and on the mammæ. The prevailing colour is a reddish-brown, mixed more or less with white. The muzzle is usually dark, though often it is flesh-coloured. The limbs are slender, the neck small, and the head free from coarseness. The muscles of the inner side of the thigh, technically called the twist, are thin; and the haunch frequently droops much to the rump, a character which exists likewise in the Alderney Breed, and which, although it impairs the symmetry of the animal, is not regarded as inconsistent with the faculty of secreting milk. The udders are moderately large, without being flaccid. The cows are very docile and gentle, and hardy to the degree of bearing to subsist on ordinary food. They give a large quantity of milk in proportion to their size and the meat consumed, and this milk is of excellent quality. Healthy cows, on good pastures, will give from 800 to 900 gallons in the year, although, taking into account the younger and less productive stock, 600 gallons may be regarded as a fair average for the low country, and somewhat less for a dairy-stock in the higher.

Few of the steers of this breed are reared for grazing, and the male sucking calves are sold to the butchers either when young, or when fed with milk for a longer or shorter time. The cows, when they become dry, fatten quickly, which is a property common to all good milch-cows. But the value of the breed is to be estimated solely by its adaptation to the uses of the dairy. The attention of breeders having been directed exclusively to this end, the animals have acquired, in an eminent degree, the properties sought for, and their external form accords with that which indicates this faculty, and not with that which shows a disposition to arrive at early maturity of muscle and fatness. Those, therefore, who suppose that the Ayrshire Breed combines the properties of a dairy and grazing stock, entirely mistake its distinctive characters. It stands in the first class as a dairy stock, but occupies an inferior place as one to be reared for fattening.

The Ayrshire Breed has long been extended from its native districts to all the neighbouring counties where the regular dairy is established. It now forms the prevailing stock of Renfrew, Dumbarton, Stirling, and Lanark, and it has extended into the shires of Dumfries, Wigton, and Kirkcudbright. It has been carried into England, where, however, it has never arrived at the estimation which it possesses in its native pastures. All cows succeed best in the places where they have been reared, and those of Ayrshire appear to have the peculiarity of tending too much to fatten, with a corresponding diminution of milk, when they are transported to richer herbage than is natural to them. They have been tried in the great dairy establishments of London, but have always been relinquished in favour of the Yorkshire and larger breeds.

Some breeders in Ayrshire have begun to cross the breed with the Short-horns. This may suit the purposes of particular breeders, because the first crosses will always be superior to the native stock in size, form, and grazing qualities, and scarce inferior to it for the production of milk; but the practice cannot benefit the general breed, now so uniform in its characters, and so well suited to the husbandry of the country. The true method of improving it, is to preserve it in the purity which it has acquired, and to adopt such modes of treatment and feeding as shall conduce to the further development of its properties and form. The Ayrshire Breed has been nearly doubled in weight, with a great increase in its power of yielding milk, within the present century; and with the further progress of cultivation its improvement cannot but be progressive.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Rutland, 45 St. John's Sq.

THE ALDERNEY BREED.

Cow and Calf _ the Property of M. Brehaut, of Jersey.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London, Published October 1841, by Longman, Brown, Green & [illegible]

THE ALDERNEY BREED.

PLATE XIV.

COW and CALF, the property of M. BREHAUT of Jersey.

The Breed termed Alderney is derived from the group of beautiful islands pertaining to the British Crown, which lie near the shores of France in the bay formed by the coasts of Normandy and Brittany. Although termed Alderney, the breed, with some difference of characters, is common to all the islands. The Cows are imported into England in considerable numbers, and are esteemed beyond those of any other race for the richness of their milk, and the deep yellow tinge of the butter. Hence they are in demand by the more opulent classes for the domestic dairy, and regarded as a kind of appendage of the park and rural villa. They are introduced likewise into the regular butter dairies, chiefly of Dorsetshire and Hampshire, and they are mingled in blood with the native races, especially the Devon and its varieties. To supply these sources of demand, the importation from the islands is regular, and forms a considerable branch of their commerce.

The cattle of this race are small, and ill-formed when regarded as animals to be fattened. The Cow is greatly below the male in strength and stature, in which respect she resembles the Cows of the Devon and its kindred breeds. Her neck is thin, her shoulder light, her chest narrow, and the belly large. The limbs are slender, the pelvic bones prominent; the lumbar region is deep, the croup short and drooping, and the udder large. The muzzle is narrow, the horns are short, slender, and curving inwards. The colour is usually of a light red or fawn, mixed with white, but frequently individuals are black, mixed with white or dun, and sometimes cream coloured. The skin is thin, and of a rich orange-yellow, and the fat, as well as the milk and butter, are tinged with the same colour. The animals are gentle, and somewhat delicate in constitution. Being small in size, the milk they yield is likewise small in quantity, although fully in proportion to their bulk of body; and it is viscid, and rich in cream. In their native country, the Bullocks are used for labour, to which they are better adapted than, from the slender form of the dam, might be inferred.

The islands from which these cattle are derived, are the sole remaining appanage to the English crown of the ancient Duchy of Normandy. When the rude Northmen had hewed a passage by the sword to the fair plains of Western France, they subdued likewise the lovely little islands on its shores; and after a hundred years of strife,—having ravaged Burgundy and the adjacent provinces, and twice assailed the city of Paris and once reduced it to ashes, these wild invaders were put in possession of the conquered lands by a formal investiture. In the year of our Lord 912, CHARLES the SIMPLE concluded a treaty, from which a thousand mighty events were to spring, with ROLLO the Scandinavian chief, to whom was yielded up the whole of Normandy and its dependencies, to be held for ever as a fief of the crown of France, but in truth to be an independent kingdom; for so little did the warlike Northman understand or regard the feudal fiction, that he refused to undergo the customary forms. One hundred and fifty years later, his great successor, surnamed the Conqueror, added the proud kingdom of England to his Norman inheritance. In the memorable course of events, the Duchy of Normandy was severed from the English sway; but the islands on its coasts were preserved, and have remained, in all the changes of fortune, to the present hour, a part and dependency of England. The customs and language of the people were retained by them, and their laws and ancient privileges have been respected for the long space of 900 years. The inhabitants have been treated by England with the favour which their fidelity and peculiar condition seemed to demand. While all the privileges of British subjects are accorded to them with respect to their commerce with other countries, they are freed from the heavy imposts to which the parent country is necessarily subject. Their corn, their timber, their wine, their sugar, and all colonial and foreign merchandize, may be imported by them free of all the customs and restraints which, in England, must be imposed for the purposes of revenue and protection, while they may export them again, as well as their own productions and manufactures, to all the world. Athough Norman in their origin, and speaking the ancient language of the country from which they have been severed, they are English with respect to their interests, their religion, and their feelings as subjects. Insulting, as it were, by their contiguity, the proud and warlike nation which regards their country as a natural adjunct of France, they have bravely aided in repelling the attempts of repeated armaments to subdue them. But their true defence is the powerful navy of England, without whose incessant vigilance in the time of war, nothing could guard them from surprise and subjugation.

The islands are four, Alderney, Jersey, Guernsey, and Serk, with their dependent islets. The most northerly, and nearest to the coast of France, is Alderney, which is well protected by its rocky shores and dangerous currents. The most westerly is Guernsey, which is the least fertile in soil; and the smallest is Serk, which consists of a beautiful table-land, scarcely accessible from the sea, and capable of being defended by a handful of men. The largest, richest, and most populous is Jersey, lying about six leagues from the coast of France. Its surface, except where it rises into rocky eminences, presents to the eye a rich forest of fruit-

trees, gardens, and little cultivated fields, amongst which are to be seen the villas and chateaus of the opulent, with the lowlier yet not less beautiful dwellings of the humbler classes, green with vines and myrtles, and embosomed in groves of the cider-apple. When viewed more near, all the surface of the country is seen to be intersected with innumerable banks of earth covered with trees, and verdant with the leaves of bushes and the creeping ivy. These are the divisions of the numberless little fields and possessions of the inhabitants, into which, as an effect of the old Norman law of succession, enforcing an equal division of land amongst the children of a family, the whole country has been partitioned. The necessary effect of this law, operating for more than nine centuries within the narrow limits of a small island, has been to reduce all the land of the country into small possessions. Scarcely an estate is to be found in the whole island of forty acres, many vary from five to fifteen, and the greater number fall below the extent of the least of these. The tendency and effect of such an institution, continued from age to age, might seem to be to produce an interminably minute division of property in land; and yet experience proves that there are limits to such a division, even in a tract so narrow and populous as Jersey. The children, in succeeding to the parcelled inheritance, make such arrangements with one another as their interests require. The younger sells to the elder, and he who does not wish for land, to him who does; and thus, besides the law of mortality, which unites from time to time the scattered possessions into one, the interests of the possessors present a barrier to an indefinite subdivision. The law, founded on the simple principle that every man is bound to provide equally for his children out of his stock in land, and that every lawful child has an equal right to the inheritance of his father, is cherished by these islanders as the most venerable of their institutions. It was derived by them from their Norwegian ancestors, in whose country it exists to the present hour; and where, after the lapse of more than a thousand years, it has not produced an excessive subdivision of estates. The land of Norway is indeed more divided than it would have been under the feudal system, but not into smaller possessions than the interests of the inheritors demand; and in no country in Europe does there exist a happier and more independent race of yeomanry than the Udal proprietors of Norway. In Jersey and its sister islands the division has been more minute, merely because a greater number of families can subsist on a given space of ground.

All the practices of rural industry in these islands are modified by this ancient institution. The land thus partitioned is cultivated in the manner of a garden, and the industry of the people supplies the place of that art which simplifies and economises labour; and that the substitution is sufficient, appears from this, that larger returns in produce and money are here obtained than in the richest parts of the British Islands. The island of Jersey, in the cases where it is let on lease, brings from L.4 to L.5 and upwards the acre, and in the neighbourhood of St Helier, the principal town, it lets as high as from L.8 to L.12; and at these enormous rents, it is to be observed, families are reared in humble affluence on spots which elsewhere would be considered insufficient to maintain the poorest labourer. The people cultivate cider as the principal subject of export, and fruits of different kinds; and in an especial manner, lucerne, clover, potatoes, carrots, parsnips, turnips, and cole, for the food of their cows. They cultivate, likewise, pease and the cereal grains, and reap abundant returns. Their land never lies fallow for a season, but is either in patches of fertile meadow, or yields continued crops in the manner of a garden. They manure it with the marine plants which grow in vast abundance over all their rocky shores. The sea-plants thus collected, they term Vraic, and use either fresh or burned. They obtain the vraic as it is cast on shore, or they shear it from the rocks at stated times. The periods and the mode of gathering it are nicely regulated by the insular laws, so that all the people may equally partake of this natural gift of their seas. It forms their domestic fuel, and the ashes are carefully preserved for use. The Cow, in an especial degree, is the subject of the care of these island farmers. She is penned on a narrow space, and shifted to fresh spots of herbage several times in the day, and in the nights of winter she is warmly housed, and, when about to calve, is nourished with cider and spices. Throughout all the year these little cows are to be seen in their patches of meadow, often under the shade of the apple-trees, and so fastened that they cannot raise their heads to pull the fruit. In addition to their herbage, they are fed with lucerne, clover, carrots, parsnips, and the large Jersey cole, the leaves of which are stripped off as they grow. A value is here attached to the cow greater, perhaps, than in any other part of Europe. She is the resource of the household for food, and her surplus produce is a part of the returns of every farm. A Jersey man, it is said, will treat every animal on his farm with neglect except his cow. To preserve the purity of the race, an act of the insular Legislature was passed in the year 1789, and yet subsists, by which the importation into Jersey of any cow, heifer, calf, or bull, is prohibited under the penalty of 200 livres, with forfeiture of the boat and tackle, and a further penalty of fifty livres is imposed on any sailor on board who does not inform of the attempt. The animal itself is to be immediately slaughtered and its flesh given to the poor.

The breeds of the several islands are essentially the same, although that of Guernsey deviates from the common type, and presents a greater affinity with the races of Normandy, the individuals having more spreading horns, the size being larger, the form rounder, and the bones less prominent, than in the cattle of the other islands. The true Alderney has a great resemblance to certain breeds of Norway, which leads to the conclusion, that, in the intercourse with the North which followed the subjugation of Normandy and its dependencies, Scandinavian cattle were introduced into the Islands of the Channel.

Plate XV.

Drawn on Stone & Printed by Fairland, 45, St. John's Square.

from a Painting by Mr. Shiels, R.S.A.

THE FIFESHIRE BREED.

Cow, 6 Years old, the Property of Mr. B. Ferney of Kilmux, — bred by Mr. Anderson, Kinglassie.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London, Published October, 1841, by Longman, Brown, Green & Longmans.

THE FIFESHIRE BREED.

PLATE XV.

COW, Six Years Old, the property of J. B. FERNIE, Esq. of Kilmux; Bred by Mr ANDERSON, Kinglassie.

The peninsula of Fife, stretching into the German Ocean, between the noble estuaries of the Forth and Tay, has long been possessed of cattle of a larger size than those of the higher countries, and exhibiting such points of resemblance with one another as to have acquired the appellation of a Breed. The existing cattle of Fifeshire, however, do not really constitute a breed or family. They are rather a mixture of breeds, the members of which are not so amalgamated with one another as to present a uniform class of characters. They vary greatly in size, aspect, and shape. Some have horns, and some are destitute of horns, and for the most part they are of coarse angular forms. The prevailing colour is black, or black mixed with white. They are hardy, and subsist well on indifferent food, and the Cows are usually good milchers. Like all the races of the lower country termed home-breds, they are slow in arriving at maturity, but the muscular substance is well mixed with the fatty; and as they produce a good proportion of internal fat, they are much valued by the butchers in the markets to which they are carried. The mixture of races which exists in Fifeshire is to be ascribed in part to the locality of the district, intermediate between the northern and southern divisions of Scotland, and in part to the condition of its agriculture up to a recent period. On the west and north-west, it lies in contact with a tract of country in which numbers of a very ordinary kind of home-breds are reared, and of which there has been long an influx into the richer parts of Fifeshire, for the purpose of being grazed. On the north, again, the country is only separated by the Firth of Tay from the breeding county of Forfar, from which numbers of cattle have been introduced; and a general favour having existed in Fifeshire for hornless cattle, the Polled Angus Breed has been largely mixed in blood with the native stock. The domestic dairy, too, having been extensively cultivated by the numerous smaller possessors of the district, Cows have been sought for possessed of the properties of good milchers, without relation to the breed, and thus Calves of a very mixed lineage have been continually reared, and mingled with the other varieties. Further, although the county of Fife was early noted in the history of Scotland for its populousness, and the number of its towns, its rural population has not until lately been very forward to introduce modern improvements. After the glorious peace of 1763, when every branch of industry in Scotland received a new impulse, Fife seemed rather to languish. Its fisheries decayed in consequence of the extension of the same branch of industry elsewhere; its rich mines were not yet sufficiently called into operation, and the population of its numerous towns and hamlets showed a tendency to decline, while a long period elapsed before its minutely-divided farms could be so united as to favour general improvement. By the commencement of the present century, however, a great change had been effected in the condition of this as of other parts of North Britain, but still the improvement of its cattle did not advance in a corresponding degree, or rather they had been undergoing deterioration, by a continued departure from the type of the only really pure and valuable breed which the country produced. This breed was termed the Falkland, from the ancient royal manor of that name.

The domain of Falkland, situated in the lower part of the vale of Eden, had early merged into the possessions of the powerful Earls of FIFE, the descendants of that illustrious chief who, as MACDUFF the Thane, has had a memorial of his name bequeathed to every age by the creative genius of poetry. In the reign of JAMES I., all the possessions of this ancient family were forfeited to the crown for multiplied acts of treason; and from that period the manor of Falkland, with its noble palace, its woods, and hunting-grounds, became the favourite retreat of the princes of the House of STUART. JAMES II. erected into a royal burgh the little town of Falkland, because, as the preamble of the charter states, of the frequent residence of the king at the manor of Falkland, and of the damage and inconvenience from the want of victuallers, to the prelates, peers, barons, nobles, and others of the king's subjects who came to the Court. Falkland was equally the favourite retreat of his son JAMES III., and of the gay and gallant JAMES IV. during the few brief years accorded to him ere he rendered up his crown and life on the bloody field of Flodden. It was the early residence, likewise, of the accomplished JAMES V., who, less happy than his father, died of a broken heart at the youthful age of thirty-one; and in more peaceful times it became the frequent residence of his grandson JAMES VI., ere he had the happy fortune to unite into one the long-divided realms of Scotland and England. It is from the domains of this ancient seat, rendered memorable by the abode of so many princes, that the breed of Falkland cattle beyond a doubt originated. A tradition has been handed down, that JAMES IV., when he married MARGARET, the daughter of HENRY VII. of England, received,

along with the dowry of his youthful queen, a present of 300 English Cows, which were conveyed to the park of Falkland, whence their descendants spread into the neighbouring country. There is nothing inconsistent with probability in this tradition; although the Falkland Breed appears to be of foreign origin. It resembles the Black Dairy Breed of the Low Countries, common in the dairies of Holland; and therefore, if brought from England, it must have been an imported race, though not the less likely, on that account, to have been deemed a gift worthy a royal prince. It may rather, however, have been brought directly from the countries that produced it. Fifeshire, like all the rest of the east of Scotland, early received numerous colonies of Flemings, and had carried on with the opposite continent such an intercourse as the limited commerce of these rude times admitted. The Flemings and Hollanders were even at this early period known for their Cows, and it is altogether probable that some of these animals were brought to the royal park of Falkland, as something that was curious and useful. The ancient kings of Scotland, it is to be observed, were farmers and breeders of the useful animals on the great scale, nearly all their household revenue being derived from the produce of their own domains. Of this innumerable evidences are derived from the charters and other documents of our early history; and it is reasonable to believe, that, during the frequent residence of the royal household at the rural retreat of Falkland, cows, and the produce of the dairy, were not neglected.

But however the dairy breed of Falkland found its way thither, whether from England or from the marshes of the Scheldt and Rhine, it is manifest that it had been naturalized at some early period in the place where its remains are yet found. Unfortunately it has been so merged in the common races of the country, that individuals can now with difficulty be obtained pure. It was of a black colour, marked often with white, and having the skin of an orange-yellow tinge. It had short and very white horns, turned up in a manner sufficient to distinguish it. Although now difficult to be obtained free from mixture, its traces are everywhere to be found in all the home-breds of the eastern parts of Fife; and it is probably to this intermixture that the modern Fifeshire cattle owe the most useful qualities which are supposed to distinguish them. The Cow shown in the figure is a fine specimen of the breed, but a Bull could not be procured in the whole district exhibiting the same evidence of purity; and the owner of this beautiful Cow was afraid that she was the last of the pure Falklands which he should possess. It is much to be regretted that the former breeders of Fifeshire should have been too careless of the preservation of a breed so much superior to the mixed varieties that have succeeded to it. Had the Falkland Breed been cultivated with care during a period when artificial food could have been supplied in the requisite quantity, it is probable that Fifeshire would now have been possessed of a breed combining, in a degree not surpassed by any other in the kingdom, the properties of grazing and yielding milk.

But the breed of Fifeshire being now, from whatever causes, mixed, and the Falkland Breed existing in too small a number to allow of any reasonable hope of restoring it, the economical question which arises, is, in what manner the existing varieties may be best improved? This certainly may be effected in the case of the Fifeshire, as of any other cattle, by a careful selection of the parents, and by a continued system of breeding amongst the individuals of the improved progeny; but the end could not be accomplished without the long labour which such improvements demand, and hardly without a more general accordance in the opinion of breeders than now exists with respect to what the Fifeshire breed really is, or what it should be. While one class of agriculturists shall cultivate a race on the model of the Polled Angus or Galloway, and another one on the type of the horned Falkland, particular herds and stocks may be improved, but no uniform breed can be established. It would seem better, then, to recur at once to a breed already formed and of recognised goodness. The improved Short-horns, or Durhams, have already supplanted the coarser home-breds over a great part of the British Islands. They have taken root far beyond the Forth even in the most northern counties; and in the high range of the Lammermuir, to the south of the same river, the breed is now reared in its purity by every farmer: and it would be absurd to contend, that a low country like Fife, abounding in fertile soil, capable of producing turnips and the cultivated grasses, and continually advancing in its agriculture, should not be able to support any of the finest and largest breeds which the Island can produce. Intelligent individuals have already introduced stocks of pure Short-horns, but even the merely crossing with superior Bulls of the breed would at once remove all the harsher characters of the Fifeshire varieties; and although crossing, in the case of certain breeds which have acquired a fixed class of characters suited to the condition of a particular country, as the Ayrshire and the Galloway, might be injudicious, it would never be found to be so with a class of cattle so mixed and various as that of Fifeshire. Doubtless the Durham Breed is not so well fitted for the ordinary purposes of the dairy as the home-breds of Fifeshire; but then in that locality the dairy, though extensively pursued, is little more than an affair of the household. The main purposes of the grazier are grazing and fattening, and it seems proper that a breed of the first class should be established in a district so well fitted to pursue this branch of husbandry.

Drawn by Mr. Nicholson R. S. A. from a Painting by Mr. Shiels R. S. A.

Drawn on Stone & Printed by Fairland, 45, St. John's Sq.

THE SHEETED BREED OF SOMERSETSHIRE.

1. Cow, of the polled variety, 4 Years old, the property of Mr. John Weir, West Camel, Somersetshire.—2. Cow, of the horned variety, 4 Years old, from the stock of the late Sir John Phileps, Montacute House.

London, Published October 1842, by Longman, Brown, Green, & Longmans.

THE SHEETED BREED OF SOMERSETSHIRE.

PLATE XVI.

1. COW, of the Polled variety, Four Years Old, the property of JOHN WEIR, Esq., West Camel, Somersetshire.

2. Horned variety, Four Years Old, from the Stock of the late Sir JOHN PHILEPS, Montacute House.

A variety of cattle rendered remarkable by the striking contrast of colours on the body, is found in Somersetshire and the adjoining counties. It has existed in the same parts of England from time immemorial. The red colour of the hair has a light-yellow tinge, and the white colour passes like a sheet over the body. The individuals are sometimes horned, but more frequently they are polled. The cows are hardy, docile, and well suited to the dairy. The beef of the oxen is of good quality and well marbled. The breed has become rare, which is to be regretted, since it is much better suited to the dairy than others that have been adopted.

The peculiar marking which distinguishes these cattle is not confined to any one breed. It appears amongst the cattle of Wales when they are crossed by the White Forest Breed; and is frequent amongst those of Ireland, and used to be so amongst the older Galloways of Scotland. It is very common in Holland, where the colours are black and white. It may be ascribed to the intermixture of two races having each a tendency to produce the pristine colour of the stock from which it is derived. Thus a mixture of the White Forest Breed and a Suffolk Dun might produce an animal resembling the Sheeted Somerset; with the Black Falkland, one resembling the sheeted varieties of the Dutch, and so on. The peculiarity, when communicated, is very constant; and, when two animals possessing it are mixed together in blood, the progeny never fails to preserve the marking of the parents.

To these and to the other dairy breeds before described, such as the Kerry and the Suffolk-Dun, is to be added the Polled Irish Breed. The race is widely diffused, especially in the Vale of Shannon. It is of a brownish colour, is destitute of horns, and somewhat resembles the Suffolk Dun, to which, however, it is superior in size, equalling in this respect the Short-horns. This useful breed has, however, long been diminishing in numbers, in consequence of its having been extensively crossed with the Durham, the effect of which mixture is always to produce animals superior in form and fattening properties to the native stock.

Other varieties adapted to the dairy might be enumerated; but, for the most part, they are in small numbers, confined to narrow districts, and greatly mixed. It is rarely that a breed of dairy cows extends over a large tract. Where such a circumstance exists, it is more favourable to the profitable practice of the dairy than when farmers are left to search for suitable milch-cows among breeds and crosses of different kinds. In the latter case, the farmer may, from time to time, procure excellent cows; but it will be seen how little he can depend on breeding again from such animals, and how much of chance is thrown into the business of selection. But although over all the great dairy districts of England there exists the uncertainty arising from this mixture of races, still the main selection must be made from the ordinary breeds cultivated in the district. Thus, in the southern and south-eastern counties, the Devon and its varieties are principally used. They are deficient with respect to the quantity of milk which they produce, but the quality is good, and it is valued for the yellow tinge which it communicates to the products of the dairy. In the western counties, as Lancashire and Cheshire, the breed is usually the Long-horned. In the inland midland counties, the Long-horns are mixed with the Short-horns. In the eastern counties, again, the Short-horned, being the prevalent breed, furnishes likewise the chief supplies of cows for the dairy.

The external form of the Cow which indicates the faculty of secreting milk in abundance has been already described. It was seen to correspond in a certain degree with that which indicated the property of secreting fat, but to differ from it also in certain respects. The chief indications of the milking power are furnished by the width and depth of the lumbar region, the size of the mammæ, and the enlargement of the subcutaneous abdominal veins. The expansion of chest so essential to a fattening animal is not required for the secretion of milk, and it rarely happens that a cow which has a strong disposition to become fat, is not, in a corresponding degree, deficient in the power of yielding milk. Exceptions will doubtless present themselves in the case of individual cows, but these are not sufficiently numerous to invalidate the conclusion arrived at by experience. Constitutional soundness is a primary quality in a milching cow, and therefore that species of breeding termed "in and in," which consists in joining to-

gether animals near of blood for the purpose of giving prematurity of fatness, is inconsistent with the proper treatment of the dairy Cow.

In the ordinary practice of the dairy in this country, the Cows are fed in summer in the fields; but they may likewise be kept continually in the cow-house, and fed on green forage during the season of active vegetation. There is economy in this practice, and it is necessarily adopted in the dairies of towns; but it is scarcely so conducive to the permanent health of the animals as the more natural method of pasturing; nor is the milk so rich in cream, or agreeable in flavour, as when the Cows are suffered to collect their own food, and consume a greater variety of herbage-plants. Neither is the practice of raising green forage for their support so easy under the common management of farms as the other system. Nevertheless there are advantages attending it, in the greater economy of feeding, in preserving the manure of the animals, and in protecting them from the inclemency of the weather, and from the attacks of insects during the warm season. When circumstances, therefore, admit of this method of management, it will be found to be the most profitable to the dairyman, from the lesser expense of feeding, and the most beneficial to the country, from the smaller space of ground required to support a given number of animals. Even when the common practice of depasturing the ground is adopted, it will always be advantageous to bring home the Cows during the extreme heat of the day in summer, feeding them at that time on green forage, and turning them into the fields in the cool of the evening for the night. In winter, Cows are fed with the ordinary provender of the farm, receiving such a supply of green food as can be procured. The beet, the carrot, and the parsnip are each admirably suited to this purpose, causing the animals to yield abundant milk, and of good quality. Cabbages, too, are a suitable food, as well as potatoes, either raw, or prepared by boiling. Turnips also may be employed, notwithstanding the unpleasant flavour which they communicate to milk, for the taste may be removed by simple means, and in all cases the effect may be obviated by boiling or steaming the roots. Further, it is an excellent practice to give the Cows of the dairy a meal daily of boiled or steamed food, seasoned with a little salt, as two or three ounces. This mess may consist of potatoes, or of turnips, or any other succulent root, mixed with bran or any farinaceous substance. In truth, no error can be committed in preparing this simple kind of diet, which is always relished by the animals, and eminently conducive to their health. A general rule to be observed in all cases, in feeding the Cows of the dairy, is to supply them regularly, and in sufficient quantity, with good and nourishing food, and at no time, either when they are yielding milk, or after they have become dry, to suffer them to lose condition. The nature of the dairy, its products, and its importance, shall now form the subject of some remarks.

THE DAIRY.

Milk is the liquid food derived from the blood of mammiferous animals for the nourishment of their young. It is secreted in glandular sacs termed mammæ, the number and disposition of which vary in different tribes of animals. Sometimes they consist of a single pair, as in the female of the Horse, the Sheep, the Goat; sometimes of more than one pair connected together, as in the Cow; and sometimes of several pairs, extending along the lower part of the abdomen, as in the Hog, the Dog, the Cat. These organs are filled with innumerable glandular lobes, from the size of a millet-seed upwards, through which the blood, circulating in myriads of vessels finer than the finest hair, gives off the milky secretion. From these lobes proceed little ducts or tubes, which, gradually uniting, form larger ducts, and then reservoirs or sinuses, which communicate with the papillæ or nipples. The milk is secreted at the birth of the fœtus, and continues to be supplied for a longer or shorter period, according to the wants of the young. It differs somewhat in its composition in different species; but in all of them it is a whitish liquid, opaque, and of a slightly saccharine taste. It consists essentially of water, holding in solution and suspension various substances, some of which can be readily separated from the rest. Of these the principal are, 1. An oily substance, which, from its lesser density, rises to the surface, and, being agitated, forms butter; 2. An albuminous matter, which, by the action of certain substances, coagulates and forms curd or cheese; and, 3. A species of sugar, which can likewise be obtained separately from the other constituents.

Man, deriving his first nourishment from the breast of his parent, must, in every age, have been taught by his reason to apply to his uses the milk of his flocks and herds. From the earliest times, accordingly, we read of the milk of Goats, and Sheep, and Kine as being the food of our species, either in its natural state, or separated into those bland and nutritive substances which, by the easiest arts, can be derived from it. When ABRAHAM sat at the opening of his tent, in the heat of the day, in the plains of Mamre, "He lift up his eyes and looked, and, lo, three men stood by him: and, when he saw them, he ran to meet them from the tent-door, and bowed himself toward the ground, and said, My Lord, if now I have found favour in thy sight, pass not away, I pray thee, from thy servant. Let a little water, I pray you, be fetched, and wash your feet, and rest yourselves under the tree: and I will fetch a morsel of bread, and comfort ye your hearts; after that ye shall pass on; for therefore are ye come to your ser-

vant. And they said, So do as thou hast said. And ABRAHAM hastened into the tent unto SARAH, and said, Make ready quickly three measures of fine meal, knead it, and make cakes upon the hearth. And ABRAHAM ran unto the herd, and fetched a calf tender and good, and gave it unto a young man; and he hasted to dress it. And he took Butter and Milk, and the calf which he had dressed, and set it before them; and he stood by them under the tree, and they did eat." The scene, apart from the mission of the heavenly guests, might represent the hospitality of the wandering Syrians at the present hour: and all over the East, from Aleppo to the Ganges, the milk of flocks and herds supplies to the inhabitants a mild and grateful food.

The earliest writers of Greece and Rome speak of cheese and milk as a food familiar to every one. In the fatal cave of the Cyclops, ULYSSES finds the milk of Goats and Sheep stored in baskets of osier, the shelves bending under loads of cheeses; and innumerable other allusions to this early food of mankind are scattered through the writings of the poets, philosophers, and historians of Greece. But the Greeks, living in the country of the olive, made no use of butter, and became only acquainted with it from those whom, in the arrogance of their hearts, they chose to style barbarians. ARISTOTLE says of milk, that it consists of two parts, the cheesy and the watery; and it is only in another place that he refers, incidentally as it were, to the oily matter which rises to the surface. HIPPOCRATES, who wrote in the fifth century before CHRIST, speaking of the Scythians, says, that they poured the milk of their mares into wooden vessels, and agitated it violently, which caused the fat part, which was light, to rise to the surface, becoming what they called butter; and HERODOTUS, who was contemporary with him, mentions, that they placed the milk in deep wooden vessels, and caused it to be agitated by their slaves. Both writers manifestly speak of something which was new to their own customs; and for many centuries afterwards we know that the Greeks made use of cheese and oil, but not of butter. DIOSCORIDES, who wrote thirty-one years before CHRIST, seems to have been the first of the Greeks who suggested to his countrymen that this food of the barbarians might be used for diet. He says, that it might be melted, and poured over pulse and other vegetables instead of oil; but ages elapsed before the Greeks adopted the customs, in this respect, of the nations they despised.

The Romans in like manner, although they made large use of cheese, were ignorant of the use of butter, until they had extended their conquests amongst the Gauls, Germans, and Britons; and it was not until the age of the empire that they began to make use of it as an ointment in their baths, and ultimately as food. They lived in the land of the olive and the vine; and their rustic writers, while they treat largely of milk, cheese, and oil, say nothing of the preparation of butter. On the other hand, we learn from many of their writers that it was familiar to the Gothic and Celtic nations of Northern Europe. PLINY affirms that the barbarous nations made not only cheese but butter, which they used as an agreeable food. He says, that they made it from the milk of the Goat, the Sheep, and the Cow; but most commonly from that of the Cow, although the milk of the Ewe produced the fattest butter. He describes the form of the vessel employed in making it, which seems to have been similar to that now in use. The northern nations were likewise acquainted with the use of cheese, although some of the Roman writers declare that they knew not how to prepare it, which can only mean, that they did not do so after the Roman fashion; for PLINY himself, who denies this knowledge to the Germans, describes their manner of making cheese by rendering the milk sour and pressing the whey from the curd. CÆSAR says of the same people, that the greater part of their food consisted of milk, cheese, and flesh. STRABO confirms the testimony of CÆSAR, and TACITUS states that the food of the Germans was of the simplest kind, namely, wild fruits, game recently killed, or concrete milk, which must mean milk rendered concrete by curdling it. Of the Britons CÆSAR observes, that those of the interior for the most part did not sow corn, but lived on milk and flesh. And STRABO states, that some of them, though they had abundance of milk, were so ignorant as not to know how to make cheese. But if some of them only were thus ignorant, the rest must have possessed the knowledge; and we learn from other sources that the Celtæ of the wilds of Britain, where the Roman arms never reached, were familiar with this early food of the people of the East. They had learned to prepare it, it may be believed, before ROMULUS drew milk from the teats of his wolf, or before the city of the Seven Hills had a name.

All the ruminating animals subjected to domestication yield milk to their protectors; and all the members of the great Caucasian, and even the Ethiopian family of mankind, make use of it as food. It is obtained from the domestic Cow, the Asiatic and African Zebu, the Buffalo, the Yak, the Camel, the Goat, the Sheep, the Reindeer. It is yielded likewise by the Mare and the Ass. The milk of the ruminating tribes is the richest in cream and cheese, and that of the Equine family is the most abundant in saccharine principles, and approaches nearest to that of the human species. The milk of mares is used by the Kalmuks and other Eastern Asiatics. The Chinese, who are of the same family of mankind, make scarce any use of milk as food; and the red men of America, who are the nearest connected by their physiological characters with the Eastern Asiatics, manifest the like indifference to it, and until the present hour have not learned to tame the milk-bearing animals of their country, the Reindeer and the Musk Ox of their regions of snow, and the Bisons of their rich savannahs and boundless forests. Passing from Eastern Asia into its innumerable islands, we find that milk is scarcely at all used by the inhabitants. To the wretched Papuans of Borneo, New Guinea, and New Holland, apparently a distinct race of the family of mankind, this salutary food is unknown.

THE DAIRY.

Of all the ruminating animals, the Cow is that which yields her milk the most freely, and in the largest quantity. This animal possesses two pairs of mammæ united together, forming a large udder, whereas the Sheep, the Goat, and the Deer possess only one pair. She gives her milk beyond the period of maternal solicitude, and in quantity far more than suffices to nourish her own offspring. Her milk holds a middle place between that of the Ovine family and the Equine, with respect to the production of cheese, butter, and sugar, and it is more agreeable to the taste than any other. The milk of the Buffalo is more watery than that of the Cow, and the cream and butter are colourless. The milk of the Yak is rich, but, like that of other Bisons, has the odour of musk.

The Camel, inhabiting the vast deserts of Asia, and extending over a part of Africa, yields milk which may be used as food. There are two species, the Bactrian Camel, having two large protuberances on the back, being adapted for the colder deserts, and extending from the Caspian Sea eastward through Central Asia to the Indian Ocean; and the Arabian Camel, having one protuberance only, and being fitted for warmer climates and more steril deserts. The female of the former species is little used for yielding milk, because in the countries which she inhabits other animals better suited to that end are found. Nevertheless her milk is sometimes used by the Eastern nations to produce, by fermentation, an inebriating liquor. The other species of Camel is the treasure of the wandering Arabs, and has so long been subjected to domestication, that not a trace of it has been found in the wild state. The conformation and habits of this animal are suited to its condition. Its broad cleft hoof, covered with a callous skin, does not sink in the sand, and suits itself readily to the sharp stones and pebbles with which the surface may be covered. It bears thirst and hunger better than any known creature: it feeds on the withered herbage, the thorny shrubs, and bitter plants of the desert, and can take into its stomach a supply of food for the wants of a long journey. In its stomach is developed a series of deep cells for containing water; and when the Arabs, on their distant journeys, and in danger of perishing from thirst, are compelled to kill their faithful Camel, its store of water is procured as pure and wholesome as from a fountain. The milk of the female of this creature is made use of by the people as food; it is serous, and nauseous in taste to the stranger, but to the Arab it proves a resource beyond all price in the burning wilds he inhabits.

The Goat of the common species is spread over all the old continent, and many of its islands. The female yields milk in considerable abundance, and nearly as freely as the Cow herself; and she readily submits to be the foster nurse of other animals, and treats her adopted offspring with affection. Her milk is thick, more abounding in cheese than that of the Cow, and plentiful in cream. It has a peculiar taste and odour, to which use reconciles those who feed on it, and it is eminently nourishing and salubrious. The butter which it yields is of a firm consistence, and as white as snow. The cheese has a strong and peculiar flavour, not ungrateful to those who are accustomed to it. It is produced in all the parts of Europe where the Goat is reared, and largely in the Levant, Italy, Spain, and other countries of the Mediterranean.

The Ewe yields milk, but not so abundantly, freely, or for so long a period as the Goat. It is the most productive of cream of any kind of milk; but the butter which it yields is of a soft consistence, leaving a fatty impression, like tallow, in the mouth. The cheese has a strong stimulating flavour, which increases with age. It is largely produced in some of the more mountainous parts of Europe, furnishing a food grateful to the people of the countries that produce it, but far inferior in general estimation to the cheese of the Cow.

At the limits, and beyond them, of the region of the Goat and the Sheep, exists a creature fitted by a bounteous Providence to subsist on the herbs of the arctic zone, and yield its milk for human support in lands of ice and snow. The Reindeer inhabits the glacial regions of Europe and Asia, migrating along the snowy mountains of the interior almost to the line of the Caucasus. In America, too, it is found, but apparently of species proper to that continent; and there it is the subject of persecution by savage hunters who seem incapable of rising even to the pastoral state. But in Europe the Reindeer has been reduced to servitude by a race of men seemingly placed beyond the limits of humanized society, but possessed of arts which tribes of barbarous hunters do not acquire. The Laplanders in scanty numbers are spread over the extreme north of Europe, occupying a country of 300 miles by 500 on the Arctic Ocean. Distinct in aspect, character, and speech, from the Scandinavian people in contact with them,—their swarthy colour, their dark eyes, and black hair, indicate a southern origin; and their simple and expressive language exhibits a striking affinity with those of the countries of the East. They are a remnant, it may be believed, of pristine settlers in Europe, driven by stronger enemies into regions of almost perpetual winter. They have tamed the Wild Deer of their country, and rendered it a substitute for the Sheep, the Ox, nay, for the Horse of happier climes. They derive from it milk, and know how to fabricate butter and cheese. They separate the butter by agitating the milk with their hands, and employ herbs to coagulate the curd. They prepare likewise from the milk many simple delicacies, which they use with the wild-fruits of their brief summer. In the season of their dreary winter the milk of the Doe freezes as soon as it is drawn from the teats, and in this state it is preserved to be thawed when required for use. The Doe yields about the same quantity of milk as the Goat, and it is rich

HISTORY.

in the use of this ancient servant. They seem to have had their asses of nobler blood, to which they applied a peculiar term. Princes and the honourable of the land did not disdain to be borne by this ancient steed. SAUL, when called by a glorious destiny to be the King of Israel, was in search of his father's asses, or atonoth, which had strayed. His warlike successor had his superintendent of atonoth, as of the other branches of his government; and even after the Horse was introduced for the purposes of traffic and war, the services of the patient Ass were neither disused nor despised. He was, in like manner, domesticated from the earliest times by the Arabians, the Persians, and other people of the East. He was familiar to the Egyptians, as history and their sculptured monuments attest; to the Lybians; and, it may be believed, to the other inhabitants of Africa bordering on the Great Desert. He was known to the Greeks, as we learn from the earliest writers; to the Romans, who cultivated the race with care; to the Spaniards, whose early intercourse with the Phœnicians and Carthaginians could not fail to make them familiar with so useful a creature. According to STRABO, he was unknown to the Britons, and to the inhabitants of the countries of the Baltic. He at length found his way beyond the Alps into Gaul, and, at a period comparatively recent, into the northern countries of Europe.

The Ass, reduced to bondage, loses the fleetness, the spirit, and the wildness which he possesses in the state of nature. Unlike to the Horse, who readily becomes devoted to his master, and gives up all his powers to his use, this creature seems to yield an unwilling service, and to feel the degradation of servitude. Yet, when he finds himself a slave, he submits with patience to his lot, and his progeny do not seem to recover the wildness of their parents; for it is not known that the progeny of the domesticated Ass ever seek to regain their liberty by joining their fellows of the desert. It is otherwise with the Horse, who is readily tempted to join the emancipated herds, and fly from the bondage in which he has lived. In South America, numerous asses have been allowed to escape into the plains, and multiply in a state of nature, but they never acquire the habits of their free-born progenitors of the desert; they linger near the places of their birth, and fall an easy prey to their enemies. The change of nature in the Ass, by the effects of subjugation, is entire. It seems not to be the effect of discipline and education, but simply of a deprivation of liberty. Thus it is that the Ass was amongst the earliest of the quadrupeds subjected to permanent servitude, and retains so strongly the impress of slavery.

In his state of domestication, the Ass preserves nearly the pristine form and colour of his race. He is patient of thirst and toil, and able to subsist on dry and scanty forage. He does not seem to be sensible of cold, but he fears wetness, and is reluctant to enter pools and rivers. He is a strong animal, and is better adapted to the bearing of burdens and drawing of weights than, from his slender limbs and relative bulk of body, could be inferred. He is docile and cheerful under his burden when kindly used; but when urged to tasks beyond his strength, and assailed by unmerited blows, he manifests his natural temper. He sometimes draws up his lips in a peculiar manner, and shows his teeth with a savage grin; an expression of dumb agony which should speak to the feelings, in place of exciting derision and repetition of insult. It is painful to think that this creature, so meek, so patient in our service, so grateful for our kindness, should be too generally treated with contumely and harshness. Do we not consider that he is a creature who is only degraded by our abuse of him, and a slave because Nature has formed him with the instinct to resign his physical powers to our service? His figure, his voice, his very patience and submission, have been the subject of ridicule in every age. He has been regarded as the very emblem of stupidity, perverseness, and obstinacy, "tardus, piger, stupidus, stolidus." With respect to his form, we say that this, like that of all the Equine family, is graceful and indicative of activity. His ears indeed are somewhat long for our taste; but his ears, we should remember, are the organs which in the desert enable him to collect the distant sounds, and avoid the danger of his enemies; and his voice, which appears to us so inharmonious and rude, is designed to resound through the wilderness he inhabits, to warn his comrades of danger, and collect the distant members of the troop. His submission and patience do not surely demand excuse, yet even these are not the characteristics of his free-born state, but of that condition in which Nature forms him to be useful to us. His stupidity is merely inferred from his external aspect; for there is none of his tribe that exhibits equal sagacity; and with respect to his obstinacy and perverseness, it may be said that these are the result of our ungenerous use of his services, for, when treated with kindness, he manifests neither indocility nor want of attachment to his protector.

This animal, though capable of enduring great cold, is the creature of the temperate and warmer countries. It is to them that his temperament is adapted, and his spirit seems to droop when he is reared in the higher latitudes. The Asses of the north of Europe cannot be compared with those of Syria, Persia, and the countries of the Levant, nor with those of Spain and the north of Africa. The Persians, though a nation of horsemen, pay great attention to the rearing of an animal so suited to a rocky and arid country. They have their different breeds, some of which are very large, and suited to draught and the bearing of burdens, and others are light and fitted for the saddle. Also, in Syria and Asia Minor are to be seen fine asses employed in travelling and the labours of the field. In the arid deserts of Arabia, the Ass shares with the Camel the burden of transporting the tents and merchandise of the wandering tribes, the goods of the caravan, or the solitary traveller. In Barbary and Egypt, a light and

in caseous matter. Some of the wealthier Laplanders have as many as a thousand head of those fleet and powerful Deers; the less affluent have herds of 300 or less.

The milk of the Mare is used only in those boundless plains of Central Asia where the Horse can be reared in numerous herds. It contains a larger proportion of sugar than that of the ruminating quadrupeds, but less of albumen and oil. It yields curd, but the cream is in small quantity. From the abundance of the saccharine principle, it readily undergoes the vinous fermentation, and the wandering tribes have long learned to convert it into a fermented liquor, which they use in excess. They had even attained the art of separating the alcohol by distillation, long, it is probable, before the alchymists of the West had discovered that aqua vitæ, which they fancied was to confer upon them immortality. The Western Asiatics, or true Tartars, still use the milk of their Mares; but, from the diminished number of Horses, in less quantity than in former ages; for these tribes, now controlled by the powerful sway of a vigorous government, have became less predatory, and cultivate the ruminating animals more than the Horse. But the Kalmuks and other Eastern Asiatics still make considerable use of the milk of their numerous Mares.

The milk of the Ass possesses nearly the same properties as that of the Mare, but it contains still less of oil and cheese. It has been used from early times as a medicament. It is sweet and wholesome, and, from the small quantity of oil which it contains, it is the most easily assimilated by the digestive organs of any kind of milk. The butter which may be obtained from it by long agitation is soft and insipid, and possesses the property of mixing again with the whey.

Milk, like all the secretions of the animal body, is a very compound substance. It consists of about 90 per cent. of water, holding in solution and suspension the substances which enter into its composition. These are, 1*st*, The matter of butter, diffused in myriads of globules throughout the fluid; 2*d*, Caseum, or the matter of cheese, which is held partly in solution, and partly in suspension; 3*d*, Lactine, or the sugar of milk; 4*th*, An animal extract like that yielded by flesh, various soluble salts, and in some cases a quantity of free acid.

When milk is suffered to remain at rest, it separates slowly into two parts. The lighter globules of oil rise to the surface, carrying with them a portion of the caseous matter and serum, and forming the unctuous coat termed cream. The rising of the cream is favoured by employing shallow vessels, and the separation continues for twenty-four hours or more, according to the kind of milk, and the temperature of the air. The entire oil does not separate, but a portion of it remains suspended in the liquid. When the cream is removed, the remaining liquid is still opaque, is of a bluish-white colour, and has had its density increased by the removal of the lighter globules. This substance, in common language termed Skimmilk, is perfectly nutritive, containing nearly all the caseous and saccharine principles, with a certain portion of the butyraceous.

When cream is agitated for a time, or when the entire milk, without separation of the cream, is agitated, the butyraceous globules collect and adhere together, forming a soft solid, which is Butter, and which floats in the liquid. The separation of the butter, which takes place suddenly, is performed by the familiar process of churning, and in certain countries by agitating the milk in bags of hide or leather. What remains after the separation of the butter is termed Buttermilk. Buttermilk is therefore merely milk deprived of its butter, and still contains the caseous and other constituents.

Butter thus obtained has the properties of an expressed oil, and fuses at about the temperature of the human body. It is a very compound substance, being resolvable into various animal fats and acids; and further, it is not obtained pure by the mechanical means employed to separate it, but retains a portion of caseum, serum, and the soluble matters of the milk. When exposed to the air, it speedily undergoes a change, and becomes rancid. To preserve it from decomposition, it is mixed with salt and other substances. The people of the warmer countries of the East subject it to fusion, by which means the extraneous matters are separated. It is then termed Ghee, in which state it is used by the Hindoos and other Asiatics. The Arabs consume it in enormous quantities. BURCKHARDT informs us that it is a common practice amongst all classes to drink every morning a coffee-cup full of ghee. The taste for it is universal, and the poorest persons will expend half their daily income in order that they may enjoy their melted butter in the morning and at noon. Large quantities of this substance accordingly are yearly shipped for Arabia from Abyssinia and Egypt.

The butter of milk, it has been seen, is separated by means purely mechanical; the caseous or cheesy portion is obtained by causing the albuminous matter of the milk to cohere or coagulate. When milk, with or without separation of its cream, is kept for a time, the caseous matter diffused through it, or dissolved in it, coagulates and forms curd. This coagulum envelopes the parts which still remain liquid, and renders the whole of a gelatinous consistence. By pressure and breaking the coagulum, the greater part of the liquid readily separates, and the curd being compressed forms cheese. But the process of coagulation may be hastened by the mixture of various substances. All the acids possess the property of coagulating milk even at common tem-

peratures, and more readily when assisted by heat. Even alcohol, gum, sugar, and soluble neutral salts, produce the formation of curd. Certain vegetable principles, as tannin, and the juices of numerous plants, likewise coagulate milk, as an infusion of the stems or leaves of sorrel, of butterwort, of ladies' bedstraw, of the flowers of the artichoke, and of the roots of the marsh-marigold. But the substance the most approved of for producing coagulation is runnet, which is prepared by macerating the stomach of a sucking animal in water, so as to extract the gastric juice, of which a very minute quantity contained in the infusion suffices to coagulate a large quantity of milk. As acids promote the coagulation of milk, so the alkalis prevent it, by rendering the caseous matter soluble. When therefore soda, potassa, or ammonia, exists in milk, coagulation will not take place until the alkalis are neutralized by the addition of acids, or by their spontaneous formation in the milk.

After the curd has been formed, either by the slow formation of acids in the milk, or by the addition of coagulating media, the curd is broken, and the liquid which it envelopes is separated by pressure. The expressed liquid is Whey; and whey, therefore, is merely milk deprived of its cheesy matter. Whey accordingly contains butter, in so far as the cream has not been separated, and butter therefore may be derived from whey. It contains likewise the sugar of milk, which may be obtained separately, in the crystalline form, by evaporation; and in certain parts of Europe the sugar of milk is prepared on the large scale, and forms the subject of commerce. Whey is sometimes used as human food, but more generally for feeding the animals of the farm. It quickly becomes acid and yields vinegar; it passes likewise through the vinous fermentation, in which state it has an intoxicating effect.

Cheese, as formed by the common methods, is a mixture of caseum with the oily matter of milk, to which it owes its richness. When the cream, therefore, is separated from the milk before coagulation, the cheese contains less of oil, and is of inferior estimation. When newly made, cheese is soft, gelatinous, and mild, but after a time it undergoes a chemical change, and becomes strong-scented and stimulating. It produces certain fungi termed mould, and becomes the abode of innumerable larvæ, derived from the eggs of two insects, the one a species of bug, the other a kind of fly. It is when in a state of decomposition, and inhabited by these disgusting creatures, that it is the most valued as a stimulant to the appetite.

Milk then, it is seen, may be separated by easy means into four parts: 1*st*, into Butter, which is obtained by simple agitation, either of the entire milk, or of the cream separated from the milk; 2*d*, into Buttermilk, which is obtained by separating the butter; 3*d*, into Cheese, which is produced by coagulation either of the whole milk, or of the milk after separation of the cream; and, 4*th*, into the liquid residue, or Whey. The means of obtaining these several products are so easy, that it is not surprising that they should have been known from the earliest times, and practised by the rudest people. In the more advanced stages of rural economy the art of the dairy is reduced to principles, and merits the highest attention as a branch of public industry and domestic economy.

The Cow goes with young about nine months, but with great inequality of time beyond this period, dependent on temperament, food, and treatment. The lacteal secretion is observed previous to the birth, but only takes place in quantity when the young is born, though in a few rare instances, heifers, without contact with the male, have been known to produce milk; and the same curious anomaly has been observed in the case of young mares. For a few days after the birth, the milk, then termed Colostrum, is viscid, and of a deep yellow colour, and tends more readily than other milk to undergo decomposition, and yields butter with difficulty. The colostrum should not therefore be mixed with the other milk of the dairy, but be given to the new-born calf. The milk, in a few days after the birth, assumes its usual properties, and for about ninety days is yielded abundantly, and with an increase of richness in cream. The produce after a time continues to diminish, and in about forty days before the birth the milk becomes alkaline and incapable of coagulation, and ceases to be saccharine. The further milking of the animal should then cease. Cows are usually milked twice in the day throughout the year, in the morning and evening, but they may be milked three times in the day when very full in milk. The operation should be performed with gentleness and care, and the milk withdrawn to the last portion. The first drawn milk is always comparatively serous, while every succeeding quantity improves in richness and abundance of cream, so that the last portion contains many times the proportion of cream contained in the first.

The domestic dairy is directed indifferently to the procuring of milk for food, to the preparation of butter, and sometimes to the production of cheese. But the larger dairies designed for the sale of milk and its products, are devoted more exclusively to one or other of these productions. The first class of dairies consists of those directed to the disposal of milk in the fresh state as human food. Of this kind generally are the dairies in and around towns. These are the dairies in which the largest return is obtained from the produce of the Cow. The second class consists of those in which the milk is chiefly employed for the production of butter to be disposed of in the fresh state. These are the next in profitable return to those in which the milk itself is disposed of; and they are generally limited to the vicinity of the markets of consumption, or to places having easy access to them. Where the market is remote, or the access to it difficult, the butter, in place of being used in the fresh state, is salted for preservation. The third kind of dairy is chiefly employed in the preparation of cheese; but for the most part in the practice of the dairy

the manufacture of cheese is combined with the preparation of butter to be disposed of in the salted state. The interests and habits of the dairyman will lead him to the kind of dairy which he shall establish. If he is in the vicinity of a town, he will generally adopt that which is to supply the inhabitants with milk in the natural state. In this kind of dairy the rule of practice is, that the milk shall be conveyed to the consumer before the cream has separated from the liquid, and before acidity has taken place by the formation of acids. To prevent ascescence and the separation of the lighter parts, it should be kept at the greatest possible degree of cold. The ascescence and coagulation of the milk, too, may be retarded or prevented by the addition of an alkaline carbonate, of which the most suitable is carbonate of soda. The crystallized salt, being dissolved in two or three times its weight of cold water, is to be mixed with the milk, until a slip of turmeric paper, dipped into the fluid, retains its yellow colour, or rather just begins to change its yellow colour to brown. And even when milk has become acid and curdled, it may have its properties restored by this means. Milk, too, may be preserved by heating it when taken from the Cow, and once a-day afterwards. When milk is evaporated to dryness, the residuum, in the form of a powder, may be preserved in close bottles; and when required for use, mixed with water, to be formed into an emulsion, which is not very different in its flavour and qualities from the original milk; and in this manner the substance of milk may be preserved for the longest sea-voyages and distant journeys. The trade in milk in large towns has given rise to a system of adulteration which ought to be punished as a fraud upon the consumer. The primary adulteration is dilution by water, which is known to be practised to a great extent in some of the capitals of Europe, and chiefly in London and Paris. The effect is not confined to an impairing of the nutritive properties of the milk: it leads to other devices, still more criminal, for the purpose of concealing the adulteration.

The next destination of the dairy is the production of Butter. The preparation of butter is a simple process, capable of being performed on the large scale, as well as on the small, by the domestic inmates of the household. It may be obtained either by separating the cream from the milk and churning it, or by churning the cream and milk together. By churning the cream alone, butter will be obtained of better flavour and more valued for domestic use; by churning the milk without separation of the cream, butter will be obtained in larger quantity, and though not usually so delicate in its fresh state equally suited for being salted.

When butter is to be prepared by churning the cream alone, the following is the method adopted. The Cows being milked, the milk is carried home to the dairy in pails or larger vessels, into which the smaller ones have been emptied, with the least possible delay or agitation of the milk. For which reasons, as well as in order to economize the time of the milkers, the cows to be milked should be driven quietly home to the vicinity of the dairy. The milk is passed through a hair-sieve into the vessels in which it is to remain. These vessels may either consist of shallow troughs formed of marble or slate, of a size to contain the milk of several cows, and having an aperture with a stopcock at bottom; or of shallow circular vessels capable of containing from half a gallon to a gallon. The latter are made of wood, but better of unglazed earthenware; and, with still greater advantage, of zinc, or of cast-iron softened by annealing, turned smooth inside, and coated with tin. Whichever class of coolers is employed, the milk is emptied into them to the depth of from four to six inches, and the liquid is left at rest in the milk-room. In twenty-four hours, the greater part of the cream will have risen to the surface; but a larger quantity will be obtained if the milk is allowed to stand for a longer time. Sometimes, in very cold weather, it is permitted to stand for forty-eight hours, but twenty-four will suffice for obtaining all the more valuable part of the cream. When the larger troughs are used, the stop-cock is turned, and the serous milk is withdrawn from beneath the cream; and then the cream is in like manner withdrawn into a separate vessel; and in the case of the smaller coolers, the cream is skimmed off, which may be done by a flat perforated dish of tin. Sometimes repeated skimmings of the cream take place, and sometimes its separation is favoured by the application of heat. The apartment for containing the milk, commonly termed the milk-room, should be well protected from the effect of the sun's rays, and formed so as to admit of easy ventilation. It should, if possible, be arched with brick or stone, have a northern exposure, and be distant from standing ponds of water and putrid effluvia.

The cream being removed, is put into a vessel, frequently a barrel, but better a jar of unglazed earthenware, or vase of marble. Fresh portions of cream, from successive milkings of the cows, are added, until a sufficient quantity is collected for churning. It may remain a week, but it is better that the period should not exceed four or five days. In this state the whole cream becomes acid and coagulates, which favours the separation of the butter; and in order to produce coagulation, the acid juice of lemon may be added. When the necessary quantity of cream has been collected, it is put into the churn.

Churns are of various kinds. The most common is the Plunge-churn, as it is called, moved by the hand. It consists of a cylindrical vessel of wood placed upright. The agitation is given to the milk by a perforated board, which nearly fits the cylinder, and to which is attached a long handle. This being moved up and down, the milk is agitated, and the butter, after a time, is separated. The other kind of churn, termed the Barrel-churn, consists of a cylindrical vessel of wood, placed horizontally, through which an axle passes having sparred arms or wings, which are fixed to it within the cylinder. A handle is attached, and either

the churn is moved round, or the axle with its arms is moved, the churn remaining stationary. Of the two kinds described, the best is the plunge churn, which may either be moved by the hand, or be on the larger scale, and driven by machinery.

The best temperature for churning is about 56° of Fahrenheit, the heat of the milk rising 4° by the action of churning; and in the warmer season of summer, the most suitable time for performing the operation is in the cool of the morning. In winter, when the weather is cold, the temperature of the milk should be raised to 60° or more, by the addition of warm water. The time required for churning by the hand varies from about an hour and a quarter to two hours; and in winter to three hours. The process should be begun gently, so as to break the coagulum, and then continued equally and without intermission.

The butter being formed, is collected and removed from the churn. It is then worked to and fro on a board, or smooth slab, so as to express the serum, dried with a cloth, or moderately washed with water. The operation of kneading may be performed by the hand, but it is better done by wooden spatulæ, the contact of the hand injuring the butter. When the butter is not designed for immediate use, the pressure and washing should be so performed as that all the serum shall be separated, any portion of it remaining causing the butter to spoil in a short time. When the butter is intended for sale, it is mixed with a little pure salt, and formed into lumps or rolls, usually of a pound or half a pound each. It is kept cool, but in no case under water. When the butter is not designed for present consumption, it is more or less impregnated with salt, in the proportion of an ounce or less to the pound. The salt being worked into the butter, the latter is put in jars or casks. The casks should be of lime, or other hard wood, carefully seasoned by being boiled for several hours before being formed into casks, and afterwards by being exposed to the air, and well soaked in cold water or brine previous to use. The cask being rubbed in the inside with salt, the butter is pressed into it, and in seven or eight days a quantity of melted butter, or a saturated solution of salt and water, may be poured in to fill up any vacuity between the butter and the wood; and the whole being then covered with a layer of salt, the top of the vessel is put on. With the salt employed in curing may be mixed a proportion of purified nitrate of potassa, and sometimes a quantity of sugar, which preserves the butter without communicating a saline taste.

The other method practised consists in churning the milk and cream together. In this case the milk, as it is brought from the Cows, is put into the cooling vessels, as before, in order that it may cool down quickly to the temperature of the milk-house. When this has taken place, or even without the preliminary cooling, the whole milk is emptied into a barrel, where it remains until it becomes acid and coagulates. This will take place in a week or less, according to the temperature of the air. It is then put into the churn, and gently churned for a few seconds, so as to break the coagulum, and mix its parts; and then a little hot water is added, so as to raise the temperature to 70° or 75°. The addition of hot water is not necessary, but it saves labour by causing the butter to separate more readily. The process of churning is more laborious than when the cream alone is used; and therefore machinery should be employed to move the churn. In the larger dairies the churn may be made to contain sixty or seventy gallons or more, and this quantity of milk may, by means of a small pony or slight water-power, be churned in an hour and a half.

When the cream alone has been used in churning, the residuum after removal of the cream is skimmilk. This substance still retains the caseum of the milk, and may therefore be employed for the making of cheese. But it is not so well suited for this purpose as the entire milk, because the cream, which adds to the richness of the cheese, has been mostly withdrawn. It may be used for human food, and is perfectly nutritious, containing both the caseum and sugar of milk. Over a large part of England it is chiefly employed for the feeding of Hogs, which is a great misapplication of a substance fitted for human aliment, and practised in no other country in Europe.

When the milk and cream are churned together, the dairy affords no skimmilk. But in place of it there is the buttermilk, which is a greatly more nutritive substance than that which is obtained when the cream alone is churned. It is merely, in truth, the milk deprived of its butter. It is subacid and cooling, and is used for food in some of the western counties of England, largely throughout the west of Scotland, and all over Ireland. It may be coagulated, and cheese prepared from it; but the cheese of buttermilk is of little estimation. When buttermilk is kept, it partially undergoes the alcoholic fermentation, and becomes intoxicating.

The consumption of butter in the British Islands is prodigiously great. It is used by all classes in the solid form as a grateful food; and is applied to the innumerable purposes of household economy, in which oil is used in the countries of the olive. Notwithstanding the vast internal production, a large importation takes place from other countries, chiefly from Germany and Holland. The principal district of the butter dairy in England is the southern and south-eastern counties. Butter is brought to London in the fresh state from the distant provinces; and even when salted, it is the practice of the dealers to wash out the salt, and sell the butter to the inhabitants as fresh.

The other product of the dairy is Cheese, which may either be produced by curdling the entire milk, or by separating the cream and coagulating the milk alone. The first process is the preparation of the coagulating medium termed runnet or rennet,

which is most conveniently derived from the gastric juice contained in the abomasum, or fourth stomach, of a sucking calf. When the animal is just killed, this organ, with the coagulated milk and chyme which it contains, is taken out to be preserved by salting and drying in the manner of bacon. When required for use, it is cut into small pieces, and macerated in water for a few days, and the liquor, which is Runnet, is preserved in bottles. Prepared stomachs of the calf form the subject of commerce. They are imported from Ireland under the name of Vells; but every dairyman should prepare them for himself, as in this way only he can be assured of the strength and goodness of his runnet.

When a cheese is to be formed, the course of proceeding is determined by the quantity of milk at the command of the dairyman. If there is a sufficient number of Cows to make one or more cheeses at each milking, then the milk, as it is brought from the Cows, is strained through a hair-sieve into a tub or vat, and while it is yet warm the runnet is added; and if it shall have been too much cooled after milking, it is raised to the required temperature by the addition of hot water. The quantity of runnet used depends upon its strength, and this again on the method by which it has been prepared, so that no precise rule exists for adapting the quantity of runnet to that of the milk to be acted upon. It is used in all quantities, from a table-spoonful or two to the third part of a pint, the rule of practice being to employ it in such a quantity, as shall just suffice to coagulate the milk in the space of not less than an hour. Previous to the addition of the runnet, it is common, in the English dairies, to add some colouring matter, in order to give a red tinge to the cheese. The substance commonly employed is arnotto, which is derived from the red pulp covering the seeds of the shrub *Bixa Orellana*, and is imported from South America and the West India Islands in the form of red balls. It is dissolved in a bowl of milk by rubbing a small piece of it on a smooth stone kept for the purpose, which causes the milk to assume a deep red colour; and the milk thus coloured, is added to that to be curdled in the quantity required to give it a deep orange tinge. The dye being mixed, the runnet is added, and the whole being stirred, the vat is covered with a thick canvass cloth, so as to prevent the milk from cooling: the whole is then left at rest, and the coagulation proceeds to its termination.

This is the method of proceeding, when there is a sufficient quantity of milk at each milking of the Cows to form one or more cheeses; but when there is not a sufficient quantity of milk for this purpose, or when for any reason the milk of a previous collection is mixed with the new, then the older milk is to be heated to the required temperature before being mixed with the new. This may be done by heating the old milk in a boiler to the temperature of about ninety degrees, or better, by putting the milk in a tin or copper can, and placing this in a cauldron of boiling water; or else by heating only such a portion of the milk as, when added to the remainder, shall raise it to the temperature sought for. The heated milk and the new being then mixed together, the colouring matter and runnet are added, the vat is covered, and the coagulation allowed to proceed.

The most suitable temperature for the milk to be curdled is found to be about 90°. The quantity of runnet should be so adjusted to the liquid, as that the coagulation shall take place in about an hour. If the coagulation take place too quickly, either from an excess in the proportion of runnet, or too high a temperature of the milk, the curd produced is hard and tough, and the cheese is wanting in delicacy of texture and flavour; and if, on the other hand, the strength of the runnet, or temperature of the liquid, is too small, the curd does not acquire sufficient consistence.

The curd being formed, the whey is expressed. This is at first done gently, because otherwise, before the curd has acquired consistence, a portion of the cream would be expressed along with the serum. The most approved practice is to cut the curd quickly, and in all directions, with a knife. A common table-knife will suffice; but it is better that it be formed of several blades at the distance of an inch from one another. On dividing the curd, the whey rapidly exudes and rises to the surface, and the curd subsides to the bottom. As soon as this has taken place, the whey is to be rapidly removed. This is done partly by pouring it off, and partly by baling it out with wooden bowls, although it might be better done by a syphon. The subdivision of the curd with the knife at the same time is continued, and when all the whey that can be separated in this manner is removed, the curd is taken out and placed on a large sieve, and permitted to drain. When the whey by these means has been drained off to the utmost, the curd is placed on a board or in a perforated vat. It is then minutely comminuted and compressed by the hands, and this manipulation is continued so long as any whey can be expressed.

The curd is then to be subjected to the action of the cheese-press, in order that it may be consolidated, and that all the further serous matter may be expressed. To this end it is pressed into the mould, which is a wooden vessel of the size and shape of the cheese to be made, formed generally by the turning lath out of a solid block of wood, and furnished with a thick separate top of a size sufficient to fit the interior of the mould. A linen cloth to be folded round the cheese is put into the mould, and the comminuted curd is heaped into the cloth, which is covered over it, and the whole is put under the press. The curd remains in the press for an hour or two; when it is taken out, wrapped in a fresh cloth, and replaced in the press. After this it is taken out every six hours, or oftener, the same operations being repeated. In three days or more, according to the degree of previous manipulation, the operation will be completed. The pressure on the curd should have been gradually increased from about 60 lb. to 300 lb. or more.

The cheese has now to be removed to a warm apartment. If it has not been previously salted, which may have been done either by salting the curd, or by rubbing the cheese with salt each time it was taken out of the press, it is now to be salted. To this end, it is to be rubbed with salt daily for eight or ten days. It may likewise be washed once or twice with hot water, and finally rubbed with butter, so as to soften the external surface, and prevent its cracking. It is then placed in the store-room, on a shelf, where it remains until disposed of. It is for a time to be turned daily, and the skin is to be kept clean and soft, by anointing and brushing it. The cheese apartment should be moderately cool, and be ventilated without admitting any current of wind. It should be kept exceedingly clean, and the walls and other parts should be frequently washed with a solution of chloride of lime, so as to destroy effluvia, and prevent the multiplication of insects which deposite their eggs in the cheese.

When cheese of peculiar richness is required, the practice is to add a farther quantity of cream to the milk to be curdled than that which itself produces: thus the cream of one milking is added to the milk of the following one, which is made into curd. By this means the milk for each cheese has not only its own cream, but that of the previous milking. There is waste in this practice, but the higher price of the cheese compensates the dairyman. In this manner are made the rich cheeses of Stilton, Cottenham, and Southam, usually termed cream-cheeses. The process is, after having milked the cows in the morning, to skim off the cream of the previous evening, and mix it with the new milk. The runnet being added, the coagulation is allowed to take place in the usual manner, with this difference, that the temperature of the milk is kept somewhat lower, and the coagulation more slowly produced. To retain the cream, too, the whey is more cautiously separated, and in place of the strong pressure of the cheese-press, the cheese is pressed with cloths bound round it. In the preparation of the cheese called Stilton, which is the most esteemed of this class, the curd, after being formed, is gently lifted out of the vat and placed on a sieve. When the whey is strained off, the curd is carefully compressed by the hand till it has become dry and firm, and then placed in a box or mould. It is afterwards set on a dry board and bound round with fillets of linen cloth, which are tightened as occasion requires. The ends of the cheese are carefully brushed, and when the cloths are removed the sides are treated in the same manner; and this manipulation is continued for two or three months. Sometimes the curd is hung up in nets, but the cheeses formed in this way are not so much valued as those which are made in moulds.

Another class of cheeses consists of those which are made after a separation of the cream, usually termed skimmilk cheeses. They are less oily, and consequently less valued than the others; but they are nearly equally nutritious, and are largely consumed in the recent state by the less opulent classes. They withstand the heat of warm climates better than the richer kinds, are less subject to injury from the larvæ of insects, and are better suited accordingly to the victualling of ships. They should be made in the same manner as the full milk cheeses, with equal attention to the slow coagulation of the milk, to the careful separation of the whey, and the gradual pressure on the curd.

Cheese is produced in almost every part of the United Kingdom; but its quality varies greatly in different districts, according to the care with which the manipulation is performed and the skill derived from experience. The manufacture is more especially carried on in the country north and west of the line extending from the Wash to Somersetshire. The centre of the principal cheese-district of the south-western division of the kingdom, is the county of Gloucester, where the rich vales of the Severn and the Avon are depastured by extensive herds of dairy cows. The cheese of Gloucester is of two kinds, the single and double. The first is made with new milk in the morning, to which is added the milk of the previous evening deprived of its cream, which is made into butter. The single Gloucester, therefore, contains only half the natural cream of the milk; yet it is so admirably made, that it excels that of other districts where the whole cream is consumed. The double Gloucester, the greater part of which is produced in the hundred of Berkley, is made of the milk with all its natural cream. It is the most generally esteemed kind of cheese produced in England, possessing all the richness that ought to be required, with a mild and grateful flavour. Although Gloucestershire still retains its preeminence, the same kind of cheese is produced in all the neighbouring counties. The Berkley cheeses are purchased by the cheese-factor about Michaelmas: he judges of the quality by the blue colour of the skin appearing through the red dye with which their surface is tinged: he used to walk over each cheese; if it yielded to the pressure of the foot, it was said to be heaved, and was rejected as unfit for the London market. The Vale of Berkley alone is computed to produce annually from a thousand to twelve hundred tons of these unrivalled cheeses.

From Gloucester the manufacture of cheese, on the large scale, extends into Oxfordshire, and up the Avon into Warwickshire, which is computed to produce above twenty thousand tons annually, and into all the neighbouring districts. The county of Somerset likewise abounds in dairies, but applied as much to the production of butter as of cheese. The marshes between Bridgewater and Cross produce a fine oily cheese, and that of the Vale of Cheddar has something of the flavour of Parmesan. In North Wiltshire likewise are many dairies. The cheese is prepared nearly in the same manner as that of Gloucester. It is mild and agreeable: the cheeses are small, and being made into fanciful forms, as pine-apples, and the like, are widely distributed in the towns.

THE DAIRY.

The next great cheese-manufacturing district is Cheshire, which has been earlier distinguished for this production than any other part of England. The cheese of Cheshire is prepared from the milk of the morning, to which is added that of the previous evening, with its cream. It undergoes a more laborious manipulation than that of Gloucester, and it is more largely saturated with salt. It is not only salted when in the state of curd, but it is rubbed externally and steeped in brine. The cheeses are made very large, weighing from 60 to 100 lb. and more. They are not regarded as matured for use until they are two years old. They have a strong taste, which increases with age, and are altogether different in texture and flavour from the mild and fragrant cheeses of Gloucester and the adjoining districts. But they keep admirably well, and are more largely carried to other countries than any of the other cheeses of England. The same kind of cheese is largely produced in Shropshire on the south, and likewise in Lancashire on the north.

Turning to the eastern counties, the extensive district stretching from the Humber northward, and comprehending the counties of York, Durham, and Northumberland, necessarily yields a large quantity of milk, and all the products of the dairy. But this is rather a breeding and fattening than a dairy district, and the cultivation of Cows for milk is subordinate to the other purposes of the grazier. The main productions of the dairy are milk and butter, which, with the cheese produced, are chiefly, though not exclusively, destined for the supply of the numerous population of the country itself. The cheese of this part of England differs greatly from the strong and harsh cheese of Cheshire; but it is inferior in delicacy and flavour to that of the south-western counties. In contact with Yorkshire to the west, is Derbyshire, in which numerous dairies are established. The cheese of Derbyshire is known in the market by its own name; the butter used in the same district is chiefly derived from whey.

Crossing the Humber to the south, we enter the district where the richer cheeses, with an excess of cream, are produced. They are termed Stilton, from the market-town of that name where they first became known. They are chiefly produced in the county of Leicester, and especially in the villages round Melton Mowbray; but they are likewise manufactured in the counties of Lincoln, Huntingdon, and Rutland, still retaining the name of Stilton. These cheeses, it has been said, are formed from the morning's milk, with the addition of the cream of the preceding evening. They are in great request, from their superior richness and agreeable flavour; but, from their high price, their consumption is limited to the more wealthy classes, and their economical importance is therefore greatly inferior to that of the more common kinds. They are not reckoned sufficiently mellow for use until they are two years old, when they are in a state of incipient decomposition. In the county of Cambridge are produced the rich cheeses of Cottenham and Southam. Another kind of cheese is produced in Yorkshire, Lincolnshire, and many parts of England, formed wholly of coagulated cream. This must be used in the recent state, and is merely the subject of household luxury.

Scotland, although abounding in milk, is greatly inferior to England with respect to the production of the finer kinds of cheese. The cheeses of Scotland are, for the most part, meagre and deficient in richness, flavour, and aroma; but with the progress of the dairy this manufacture has been long in a state of improvement. The district of Cuningham, in Ayrshire, became the first distinguished for the manufacture of cheese, which is known by the name of Dunlop, and has long been much esteemed, and is largely used in the western counties of Scotland. It is mild and well tasted, but wanting in the peculiar pungency which distinguishes the finer cheeses of England. It has, however, been continually improving with the enlarging demand and more extended practice of the dairy. Similar cheese is produced in the neighbouring counties of Renfrew and Lanark. In general, the practice in the Scotch dairies is economical, simple, and efficient; but the manual processes are less carefully executed than in the practice of the superior dairies of England. Ireland is in no way distinguished for the manufacture of cheese. The principal destination of the dairy in that country is butter and buttermilk, which better consists with the state of the poorer tenants and the divided possessions of the country.

The manufacture of skimmilk cheese is not confined to any part of the kingdom, but is carried on wherever the dairy is established. As the food of the working classes, this kind of cheese is deserving of much attention. But from the greater demand for the richer cheeses which exists in England, and the consequent inferiority of the price of the other kinds, it has happened that the manufacture of skimmilk cheese is often performed in a too careless and imperfect manner. On this account the skimmilk cheeses of England are inferior to what the experience of other countries shows they could be rendered.

With respect to the produce of the dairy, the ordinary computation is, that from 7 to 8 pints, or nearly a gallon, of new milk, will produce 1 lb. of cheese. When the cream is removed, the residuum or skimmilk will produce in about the proportion of 25 per cent. less of cheese than if the cream had remained. Somewhat more than 2 gallons of milk, with its cream, will produce 1 lb. of butter; but if the cream be removed and churned separately, about 3 gallons of milk will be required to yield 1 lb. of butter. The price of full-milk cheese may be estimated on a medium at 6d. per lb.; that of skimmilk cheese at from 3d. to 4d.; that of butter at from 10d. to 1s. The quantity of milk yielded by a Cow varies greatly with the breed and properties of the individual.

In the case of the smaller and inferior class of Cows, the produce may be from 200 to 400 gallons in the year; in the case of the superior class, from 500 to 1000 gallons. The quantity, too, varies much with the abundance and quality of the food supplied, so that, *cæteris paribus*, a Cow will yield milk nearly in proportion to the nutriment she is enabled to assimilate. The high value of the products of the dairy, and the prodigious diversity in the faculty of individual Cows to yield milk, show the great importance of extending a knowledge of the best modes of performing the manufacture, of cultivating a suitable race of Cows, and of feeding them in the best manner which the means at the command of the dairyman will allow.

The Dairy is a branch of rural industry deserving of attention in the highest degree. There are no other means known to us by which so great a quantity of animal food can be derived for human support from the same space of ground. In the British Islands the production of this kind of aliment is immense, and its entire value forms no inconsiderable proportion of the yearly created produce of the land. There is no class of persons by whom milk in one or more of its forms is not used. Cheese may seem to be a mere superfluity to those who feed largely on other animal food; yet, even amongst this class, the consumption, from its regularity, is considerable; but amongst the far more numerous classes to whom cheese is a part of their customary diet, the consumption of this substance is very great. Butter is used by almost every family above the poorest, and to an enormous extent as a substitute for oil in culinary preparations. Simple milk, too, enters into the diet of every class, with this peculiarity, that it is consumed in larger quantity in the rural districts than in the towns. It may be difficult to make an approximate calculation of the quantity and value of milk consumed by the twenty-five millions of inhabitants of the British Islands. It is perhaps a reasonable calculation, that each individual consumes half a pint of milk in a day in its different forms, which would produce 570,312,500 gallons, and at 8d. the gallon, L.19,010,416, besides more than 200 millions of gallons employed in the rearing and fattening of Calves. Great as this production is, it is not sufficient for the supply of the inhabitants; and an importation takes place both of butter and cheese, which an extension of the native Dairy would enable the country to dispense with.

Drawn by Mr. Nicholson R.S.A from a Painting by Mr. Shiels R.S.A

Drawn on Stone & Printed by Fairlands, 15, St. Johns Sq.

WILD OR WHITE FOREST BREED.

Bull, from Chillingham Park, the property of the Right Hon. The Earl of Tankerville.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London, Published April 1842, by Longman, Brown, Green & Longmans, Paternoster Row

Drawn by Mr. Nicholson R.S.A. from a Painting by Mr. Shiels R.S.A.

Drawn on Stone & Printed by Easterland, 48, St. John's Sq.

HEREFORD BREED.

Bull, bred by the Right Hon.ble the Earl of Talbot, descended from the stock of Mr. Tomkins of Kingspion.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London Published April 1842, by Longman, Brown, Green & Longman, Paternoster Row.

Drawn by Mr Nicholson, R.S.A. from a Painting by Mr Shiels R.S.A.

THE HEREFORD BREED.

Cow, bred by the Right Honourable the Earl of Talbot;-descended from the Stock of Mr Tomkins of Kingspion, Hereford.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London, Published February 1842, by Longman, Brown, Green & Longmans, Paternoster Row.

THE HORSE.

HISTORY.

THE HORSE stands at the head of a small but noble tribe of quadrupeds, which naturalists termed Solepedes, or single-hoofed, from having but one apparent toe, covered by a single undivided integument of horn, although beneath the skin, on each side, are protuberances which may be regarded as rudimental toes. The stomach is single, and the males have the three kinds of teeth proper to other animals, namely, the front or incisor teeth, the canine teeth or tusks, and the molar or grinding teeth; but in the females the canine teeth are generally wanting. According to the views of modern zoologists, there is but one genus of the tribe, namely, Equus, which comprehends six species:

1. EQUUS ASINUS, the Ass.
2. EQUUS ZEBRA, the Zebra.
3. EQUUS QUAGGA, the Quagga.
4. EQUUS BURCHELLII, the Striped Quagga or Zebra of the Plains.
5. EQUUS HEMIONUS, the Dziggithai.
6. EQUUS CABALLUS, the Common Horse.

The Ass, in the state of liberty, inhabits the regions of steril wilderness which stretch from the deserts of Syria eastwards between the northern shores of the Persian Gulf and the saline Lake of Aral. He extends his range far to the eastward into the boundless regions of the Eastern Tartars, migrating southward in the season of winter, and returning with the vernal season. He is found congregated in troops, sometimes in vast numbers together. He trusts for safety to the exquisite senses with which he is endowed, and shuns the fatal neighbourhood of man. In this his natural state of freedom he shows himself to be endowed with characters and instincts which fit him for his condition. He prefers the bitter and saline plants of the desert to the herbage of the richer plains. He contents himself with the water of brackish pools and saline springs. He is wary in a high degree, exquisite in his senses of sight and hearing, swift in flight, bold in scaling the rocky precipice, and resolute in his own defence. When attacked, he employs his teeth and posterior limbs, without abating his flight. He is hunted by the tribes of the desert for his skin, and for his flesh, which is greatly esteemed by the Tartar and Kalmuck nations. He is sometimes taken in pitfalls, and thus reduced to servitude.

The Ass of Africa appears to differ from that of Asia in certain respects. But, though travellers speak of the Wild Asses of the African deserts, no authentic record has reached us regarding their habits or distinctive characters. The African races seem to be of smaller size than the Asiatic, and are probably more the inhabitants of sandy plains than of mountains. They have the hair very fine, and of a bright mouse-colour, and their general form is delicate. ADANSON, in describing those of Senegal, brought by the Moors from the interior, says that he could not recognise them as the same animals with those of Europe.

From the earliest times we have records of the habits and condition of this wild and migratory creature. The Sacred Writings make him the subject of many beautiful descriptions and allusions. "Who hath sent out the Wild Ass free? or who hath loosed the bands of the Orud? whose home I have made the wilderness, and the salt land his dwellings. The range of the mountains is his pasture, and he searcheth after every green thing." He is often referred to as typical of indocility, perverseness, and scorn of control; and his very presence is associated with images of barrenness and desolation. "Upon the land of my people shall come up thorns and briers, yea, upon all the houses of joy in the joyous city; because the palaces shall be forsaken; the multitude of the city shall be left; the forts and towers shall be for dens for ever, a joy of Wild Asses, a pasture of flocks."

This creature, wild and intractable as he seems, has been subjected to captivity from the earliest congregation of men into societies. Amongst the treasures of the early shepherds of Syria, the Ass is continually mentioned, along with the Camel and the Ox, as the beast employed in journeyings and the bearing of burdens; and even after the return of the descendants of Israel from a country of chariots and horses to the land of their promised inheritance, they preserved the simple habits of their forefathers

HISTORY.

Ass, sagacious and sure-footed as he is, though he will bear the rider through the dizzy pass, cannot support those weighty loads which the Mule can carry with ease. Even when human life is at stake, the sagacity and sure-footedness of the Mule may be equally trusted as the parent Ass. Like him, he moves along the slippery edge of the precipice, climbs the barrier of rocks, and slides down the deep descent. In the Alps and Pyrenees his services are in continued requisition, and the danger of transporting the traveller and his baggage would be extreme without his assistance. In the tropical settlements of Europeans, where the sugar-cane is cultivated, the Mule is greatly superior to the Horse for the labours of the mill and other works.

The Mule was known in the earliest ages. The Jews made use of him, though their law prohibited the coupling of different kinds of animals together. He was well known to the Persians and other Asiatics, to the Greeks, who employed him in rural labour, as we learn from HESIOD and others, and to the Romans, who made use of him in their equipages and in various ways. The race cannot be propagated by breeding from the individuals, though instances exist of the fertility of mules with a horse or ass.

The Mule may be the produce either of a male-ass and a mare, or of a she-ass and a horse; but it is remarkable that, in all cases, the former is the larger, finer, and more spirited animal. The progeny always most resembles the dam. The Mule in which the Ass is the mother has longer ears, and is of a duller temperament and less beautiful form. The mare receives the male Ass with a species of aversion, though, when the union takes place, conception seems to be as certain as when the animals are of the same species.

The breeds of the Mule are greatly varied, for the progeny is affected by the difference of character of both parents. The Spaniards use the tallest and finest asses for breeding, but the progeny varies according as the mare shall be of the lighter and more delicate breeds, as the Andalusian, or the heavier and larger breed, suited to the labour of draught. By employing large mares, as those of Friesland and Normandy, mules can be produced nearly equal in stature to the tallest horses: these are suited to the plough and the draught of any kind: when the mare is finer bred, the mule is best fitted for the saddle. Not only in Spain, but in other parts of the south of Europe, we meet with fine and graceful mules whenever due attention has been paid to the qualities of the parents. The Mule differs in this from the parent Ass, that he can be reared in the colder countries equally well as in the warmer; nay, he seems to be more robust when the climate is not too warm. The Mule is greatly less nice with respect to the choice of food than the Horse, is more easily maintained, more free from diseases, and less subject to accidents. He is soon fit for labour, but is long at arriving at maturity. He is very long-lived, and preserves his vigour to the last.

The expedience of extending the cultivation of the Mule in Great Britain is in a high degree worthy of consideration. Our means of doing so are equal to those of any country; for, though we must have recourse to other countries for the male asses, our intercourse with the countries of the Mediterranean would now render this peculiarly easy; and in the variety of our fine mares, we should have the readiest means of producing mules adapted to any kind of work. The Cleveland Bays, the Suffolk Punches, and other breeds of the larger horses, would afford us materials for producing mules of a size which would fit them for the dray, or for any kind of work to which the largest horses of the country are applied; while, should we require lighter mules for the road, our thoroughbred mares and hunters would give us the finest that any country has produced. It is the larger class of mules, however, that would probably be the most calculated to produce national benefit and private profit. The advantages to be derived from the use of the Mule in labour might be more considerable than many who have never seen the animal in his state of improvement could believe. We should have an animal with speed superior to the draught-horse, hardy, free from innumerable maladies to which the Horse is subject, easily maintained, and as docile to the yoke as any animal used in labour. It is an error to believe that the Mule is vicious and intractable: this is the result of defective education and improper usage, and will rarely occur when the animal is trained up with care, as he should always be, in the manner of the saddle-horse. When a number of horses is used in carriers' waggons, as in England, we should derive this advantage from the substitution of the Mule, that an equal number of mules would do the same work as the larger horses,—would be fed at considerable less cost,—would be less liable to accidents and diseases, especially of the feet and limbs, from which the Mule is remarkably exempt,—would continue to work longer without fatigue,—and would last longer. The farmer, too, might derive considerable advantages from a partial use of the Mule. He would certainly find him able to maintain an equal pace in the field with his other working cattle, and as fit for every labour of the farm. As an animal of all work upon a farm, many individuals have found the advantage of possessing a single mule. Although made the common drudge, subjected to irregular labour, harnessed or ridden as the case may require, this, the worst-used animal on the farm, has been found to maintain his condition with the best, and at less expense of feeding. In the few cases in this country where mules have been used for the humbler classes of carriages, as taxed carts, common gigs, &c., they have been found to endure fatigue and careless usage to an extent which no horse could sustain; and these trials, it is to be observed, have been usually made with an inferior breed of mules, destitute of size, strength, and good breeding.

THE HEREFORDSHIRE BREED.

PLATE XVII.

COW, the property of the Right Honourable the EARL of TALBOT, descended from the Stock of the late BENJAMIN TOMKINS, Esq. of King's Pion, Herefordshire.

Extending along the base of the mountains of Wales, is a tract of fertile country calculated to increase the size, and so to modify the characters, of the cattle which it maintains. This effect is seen in the fine race produced in the Vale of Glamorgan, in the mixed races which occupy the lower parts of Montgomeryshire, and yet more in those of the richly cultivated county of Hereford. If we suppose that at any time a common race of cattle occupied the higher country and the lower, we must believe that its characters would gradually diverge as the animals became naturalized in mountains of natural herbage, or became the inhabitants of a cultivated country capable of yielding artificial food. Herefordshire was of old a part of the country of the Cambro-Britons, but at a very early period fell under the dominion of the Anglo-Saxons. Yet although it has thus for a vast period been connected with Wales only by contiguity of situation, its cattle retain the traces of a common ancestry. They have that orange-yellow colour of the skin which distinguishes the Pembrokes and the Devons, and that medium length of horns which separates these breeds and their varieties from the race termed Long-horned. It cannot be supposed that they have been kept free from intermixture with the Long-horned and other varieties of the lower country, but they may be referred to that group of breeds which comprehends the Pembroke, the Devon, the Sussex, and the Glamorgan, and which some writers have proposed to term Middle-horned, a designation which distinguishes them from the Long-horned on the one hand, and the Short-horned on the other, but which does not sufficiently separate them from other very different varieties, as those which occupied many of the former forests of the country, and even from the older Yorkshire Short-horns. Of the changes which the Herefords have, until a period comparatively recent, undergone, from mixture or otherwise, we know nothing from any authentic records. When we first obtain accounts of them, they appear to have been of a good size, but of mixed characters. The Dairy was at a former period largely pursued in Herefordshire, the effect of which must have been to collect together animals of mixed descent, and only agreeing in the common character of yielding much milk. Many of them were black, many red, and so far were they from exhibiting the common characters of a breed or family, that a skilful observer, who saw them late in the last century, believed them at first to be a mixture of Welsh Cattle and Long-horns, although it appears, from the remains of the older race which yet exist, that the greater part of them consisted of a race of red cattle, which, in colour, and in the upward curvature of the horns, resembled the coarser kinds of Devons.

But whatever were the characters of the former cattle of Herefordshire, the breed, as it now exists, owes all its reputation to modern changes. About the year 1769 the late Mr BENJAMIN TOMKINS began a system of breeding, which ultimately exercised a great influence on the stock of this part of England. It appears that size, and adaptation to the dairy and the purposes of labour, were then the properties chiefly sought for by the breeders of Herefordshire. Mr TOMKINS, when a young man, was in the employment of an individual, afterwards his father-in-law, and had the especial charge of the dairy. Two cows had been brought to this dairy, supposed to have been purchased at the fair of Kington, on the confines of Wales. TOMKINS remarked the extraordinary tendency of these animals to become fat. On his marriage he acquired these two cows, and commenced breeding from them on his own account. The one, with more of white, he called Pigeon, and the other, of a rich red colour, with a spotted face, he called Mottle; and it is remarkable that the marking of the two cows may be distinguished in their descendants at the present day. Mr TOMKINS appears to have selected good cows where he could obtain them in the district, but to have reared his bulls from his own stock, although, in the earlier stage of his improvements, he sometimes made use of other bulls when they suited his purpose. After a time, however, he abandoned this practice, and confined himself in breeding to his own stock. It thus appears that the principle of his system was selection of the most suitable individuals for breeding, and that having produced, by this mean, animals of the properties required, he confined himself to his own herd. Having arrived at the improvement sought for, he communicated to the individuals, by intermixture with one another, that uniformity and permanence of character which constitutes a Breed. In this latter respect, however, he was not so successful as BAKEWELL, and many of the Herefords deviate considerably from a common type. TOMKINS, indeed, had what he termed his different *lines* of stock, as his Mottle line, and his Pigeon or Silver line, from which we are merely to infer that his animals had not been so amalgamated as to acquire a permanent class of common characters. TOMKINS continued his improvements during a long life. He was a person of very retired and unassuming habits, seldom, if ever, showing his cattle from home, or concerning himself much about what was passing beyond his own circle. In this respect his conduct was the reverse of that of his distinguished contemporary BAKEWELL, who took every opportunity to derive advantage from his stock, and to spread the reputation of it throughout

THE HEREFORDSHIRE BREED.

the country. In one respect, indeed, the course of the two breeders was similar. Each maintained the utmost reserve with respect to his mode of practice, and the sources from which he derived his original stock. It is merely known that TOMKINS began breeding from the humble stock of cows which he had early acquired; but of the breed of these cows nothing is known, nor of the animals, male or female, which he afterwards made use of for extending and improving his herd. It may be believed that the selection was made from the best of the cattle then existing in the district, and that thus the breed of TOMKINS was formed from the pre-existing cattle of Herefordshire, rather than by any mixture with dissimilar kinds proper to other parts of the country. The Short-horns were then of little estimation beyond the districts which produced them, and there is little appearance of the Long-horned blood in the modern breed. A resemblance, indeed, has generally been sought for between it and the Devons. The resemblance, however, is merely such as may be supposed to arise from a common and distant ancestry; and the form of the modern Herefords differs greatly from that which is typical of the true Devons. There is nothing, therefore, in the breed as it now exists, which can lead us to the conclusion that its original improver had recourse to any other races than those which he found naturalized in his native district.

From the unobtrusive course pursued by TOMKINS, it was only by slow degrees that the merit of his stock became known, and its influence felt; and early as had been the period at which the improvement of it had commenced, the Hereford Breed was late in being brought prominently before the public as one possessed of the valuable properties which are now, by common consent, ascribed to it. The progress of the breed, however, though slow, was sure, and it silently extended itself throughout all the county of Hereford, gradually assimilating to a more uniform standard the stock of the county; so that Herefordshire became the most important breeding district of a distinct family of the larger cattle in the West of England. TOMKINS himself died at an advanced age, having realized the honourable competence to which his high merits as an original, skilful, and successful breeder, entitled him. Eminent agriculturists in the district and elsewhere contributed to extend the reputation of the breed; amongst whom it may not be regarded invidious to mention the names of the Honourable GEORGE GERMAIN, Mr PRICE, and the EARL of TALBOT, who became purchasers of the stock of TOMKINS, and cultivated it with scrupulous regard to the purity of descent.

The modern Hereford is a breed of the larger class, the oxen attaining to a weight scarcely surpassed by any other in the kingdom. Their colour is a dark red, or reddish brown, with white faces, and more or less of white on the back and belly; and the aim of modern breeders has for a considerable period been to produce more of the white colour, which is characteristic of the Pigeon or Silver line of TOMKINS, and to which the preference has long been given. The horns are of medium length and spreading, but sometimes very short in the bulls; the forehead is broad, and the countenance open and mild; the shoulder is well formed, and the chest broad and deep. Although of a much less agile form than the Devons, their steady strength, and the docility of the oxen, suit them well for the purposes of labour. Their beef brings a good price in the market, although it is not so well marbled as that of some other breeds, even of the lower country. They tend to accumulate fat upon the rump, but not in the same degree as the Long-horns. They fatten readily, and on ordinary food; and hence the general estimation in which the oxen are held for the purposes of grazing. Although a docile race, the bulls frequently become vicious when old. The cows, like the Devons, are small as compared with the size to which the oxen attain. They are likewise indifferent milchers, so that this breed is rarely employed in the regular dairy. This must be ascribed to the exclusive attention bestowed by modern breeders on the fattening property, for the unimproved Herefords do not seem to be deficient in this property, and the Glamorgans, which are nearly allied to the Hereford breed, possess it in a high degree.

By the acquisition of this beautiful breed, Herefordshire has become a breeding rather than a grazing district. Comparatively few of the Herefords are fattened in the county itself. They are bought by the graziers of other districts, and thus fattened for the London and other markets of consumption. Numbers of them, after being worked for several years, are carried to these markets, presenting as fine specimens of the matured and fattened ox as are to be seen in any country. The Hereford breeders naturally set a high value upon this breed. They esteem it to be the finest in England. It has, indeed, many excellent properties for the grazier; but the general judgment of breeders has long been pronounced in favour of another breed, likewise perfected by the skill of the breeder—the Short-horned Teeswater, or, as it is now frequently termed, the Durham Breed. This has for many years been progressively extending, and been carried even within the native districts of the Herefords. The Herefords will frequently pay the grazier better than the Durhams; but the value of a breed is to be determined, not by the profit which it yields between buying and selling, but by that which it yields to the breeder and feeder conjointly from its birth to its maturity; and taking into account the early maturity of the Short-horns, and the weight to which they arrive, it may without error be asserted that they merit the preference which has been given to them. The two breeds have been sometimes crossed with one another; but although fine animals are produced by a first cross, the future progeny rarely equals the parents of pure blood. Unless, therefore, the Herefords were to be crossed until they became Short-horns, the proper course seems to be to preserve the two breeds in a state of purity, the breeder and the grazier contenting themselves with the excellencies which each has acquired.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels R.S.A.

Drawn on Stone & Printed by Fairland, 45 St. John's Sq.

THE LONG HORNED BREED.

Bull, 4 Years old, bred by Mr. Wyatt, of Hanwell Castle, Oxfordshire;-by a Bull bred Mr. Smith of Snidderfield, in the County of Warwick.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London, Published February 1842, by Longman, Brown, Green & Longmans, Paternoster Row

THE LONG-HORNED BREED

PLATE XVIII.

BULL, 4 years old, bred by THOMAS WYATT, Esq. of Hanwell Castle, Oxfordshire; by a Bull bred by Mr SMITH of Snitterfield, in the county of Warwick.

The term Long-horned, when applied to a variety of British cattle, denotes not only a simple character of the horns, namely, their extension or length, but a certain similarity in the external form of the animals which united a great proportion of the older cattle of the country into what might be termed a breed. Length and grossness of horns may be supposed to be connected, in certain circumstances, with the nature of the pastures and the humidity of the climate. A moist climate tends to produce thickness of skin and length of hair; and the corneous system is so connected with the cuticular, that it is reasonable to believe that what affects the skin and its covering may exercise an action on the parts connected with them. The true Long-horns seem to have been the inhabitants of the western parts of the British Islands. They extended over nearly all the plains of Ireland, and the greater part of the mountains, and yet form the prevailing race of that country. In England, they occupied Lancashire, extending northward into Cumberland and Westmoreland, and southward through Cheshire and Shropshire, to the districts on the Severn, and even into Somersetshire, where the traces of them still exist in the higher country. From the mouth of the Severn they extended inland through the midland counties even to Leicestershire. They were found, and are yet reared, in Derbyshire, and partially occupied, and still occupy, the bleak range of heathy hills which extend from that county northwards, and which divide the more westerly and humid country on the Atlantic from the eastern and drier on the German ocean. But, on the eastern slope of this range of hills, they gradually diminished in numbers, until the traces of them were lost; and they were not found within the period of any records in the south-eastern counties of the Chalk. Although they had stretched through the midland counties as far to the eastward as Leicestershire, yet as they extended eastward their characters appear to have undergone a progressive change; for although Leicestershire became in time the centre of a highly cultivated breed of Long-horns, the older cattle which possessed it seem either to have been a mixed race, or to have deviated greatly from the type of the true Long-horns of the western counties. Thus the Long-horned Breed appears to have been derived from the western and more humid countries, and to have disappeared, or lost its distinctive characters, in the eastern and drier; and hence it seems reasonable to infer, that it owed the characters which distinguished it to the influence of climate. Yet in the west of Ireland, in the moistest climate of Europe, and spread extensively over the whole country, there is a race, the Kerry, which differs, in almost every respect that constitutes a breed, from the Long-horns. The wild White Forest Breed, though reared for ages in parks in the west of England and Scotland, never assumes the characters of the Long-horned race. The North Devon, and all the native cattle of the humid mountains of Wales, are alike removed from it; and in all the west of Scotland, in tracts exposed to the continued vapours of the Atlantic ocean, no trace of the characters distinctive of the Long-horned race presents itself. The Kerry Breed, the Devon, the Welsh, and the Scotch Highland, differ as much from the Long-horned as the white man from the negro; and the two classes retain their characters distinct, though naturalized in the same tract of country beyond all records. The influence of climate alone, then, does not satisfactorily account for the formation of breeds, which, naturalized under conditions apparently similar, differ so greatly from one another; and we are rather conducted to the inference, that races so unlike were derived from distinct sources. But if the Kerry and other breeds inhabiting the country have been derived from natural stocks distinct from the Long-horned, all the traces of their naturalization have been lost in the obscurity of time.

The Long-horned Breed, as it existed before the artificial improvements to which it has been subjected, varied in size with the natural and acquired fertility of the districts in which it had become indigenous, being larger in the richer plains, and smaller in the mountains. The prevailing colour of the animals was black and brown, and they had more or less of white on the body, a streak of that colour always extending along the spine. They had thick dark skins, and abundant hair. Their horns were long and bending downwards; a peculiarity, however, which seemed to give place to the influence of external agents, since, at the eastern and southern limits of the breed in England, their horns frequently turned upwards, in the manner of other cattle inhabiting these districts. Their bodies were long, their sides flat, and their shoulders heavy as compared with their hind quarters. They were hardy, capable of subsisting without shelter, and on indifferent food, but they were slow in arriving at maturity. Their flesh was of a dark colour, and the fat of a yellow tinge. They were of docile tempers, and steady in the yoke, though sluggish in their motions. They were with difficulty amalgamated with other varieties, retaining with greater obstinacy than any

THE LONG-HORNED BREED.

other race their distinctive characters. The females were suited to the domestic dairy, yielding good milk, though not in large quantity.

This breed having been naturalized in Ireland from a period of unknown antiquity, it may be believed that the fertile pastures of that country would tend to produce a great development of form and size in the animals. Very large cattle, accordingly, appear to have been produced on the rich plains of the Shannon and elsewhere. Early writers, however, give us little information further than that the country abounded in cattle, which were the chief wealth of the inhabitants. But soon after the middle of last century, competent judges bear testimony to the excellence of many of the Long-horned cattle of Ireland. Mr BAKEWELL found, in the fair of Ballinasloe, individuals of the breed, which he regarded as inferior only to those which he himself had perfected; and it may therefore be believed, that cattle were produced in Ireland not inferior to those of the same race in the sister island. In England, the nursery of this breed was the county of Lancaster. Writers frequently refer to the fair beeves with spreading horns of this part of England. "A man may judge," says CAMBDEN, "of the soile partly by the constitution and complexion of the inhabitants, who are to see to, passing faire and beautifull, and in part, if you please, by the cattaile. For in their kine and oxen, which have goodly heads and faire spread horns, and are in body well proportionate withall, you shall find in maner no one point wanting, that MAGO the Carthaginian doth require, as COLUMELLA specifieth out of him." And another and later writer observes of the same county, "The soil, for the generality, is not very fruitful; yet it produces such numbers of cattle, of such large proportion, and such goodly heads and horns, as the kingdom of Spain doth scarce the like." From Lancashire the same breed extended not only into Westmoreland and Cumberland, but across the intervening moorlands into Yorkshire, occupying the more elevated tracts which formed the ancient county of Richmond. The district of Craven, in an especial degree, became distinguished for its breed of Long-horns; so that bulls, we are informed, used to be sent from it to other districts, even to Leicestershire and the midland counties. The Craven Breed is still to be found in the same district, now crossed by the improved variety of the midland counties, but differing in no essential respect from the native race of Lancashire.

The ultimate improvement of this breed, however, took place, not in Lancashire or Craven, but in the midland counties; and we are informed that breeders there had been early in the habit of procuring stock from Lancashire and the adjoining districts, for the purpose of improving their herds. Amongst the earlier breeders of this part of England is mentioned Sir THOMAS GRESLEY, in the county of Stafford. He is said to have kept a fine stock of Long-horns at his seat near Burton on the Trent. Little, however, is known of the breeding experiments of Sir THOMAS GRESLEY; but it is well established that another individual, Mr WEBSTER of Canley, near Coventry, in the county of Warwick, had sometime about the middle of last century become one of the most eminent breeders of Long-horns in that part of England. His stock became known as the Canley Breed. He is said to have bred on the basis of cows derived from the stock of Sir THOMAS GRESLEY, but to have afterwards resorted for bulls to Lancashire and Westmoreland. The Canley Breed is described by contemporaries as being the best that had been then produced in England.

The Canley Breed, however, after a time, gave place to one yet more distinguished, the formation of which became an era in the history of breeding in this country, and ultimately exercised an important influence on a great proportion of the Long-horns reared in the British islands. ROBERT BAKEWELL of Dishley, in the county of Leicester, was born at that place about the year 1725. His father and grandfather had been considerable farmers upon the same estate; and on his succeeding to the farm of Dishley, about the year 1755, he began to pursue with diligence those plans for the improvement of the domestic animals which had doubtless occupied the thoughts of his earlier years. He cultivated alike the Sheep, the Ox, the Horse, and the Hog, and appears to have early laid down a set of principles to which he steadily adhered. He sought for the best animals of their respective kinds, and coupling these together, endeavoured to develope, in the highest degree, those characters which he deemed good. He appears to have disregarded, or made light of, size in all the animals which he reared, and to have looked mainly to those characters of form which indicate a disposition to arrive at early maturity, and become readily fat. He acted to the fullest extent upon the principle that the properties of the parents are communicated to their descendants. This led him to attach the highest importance to what is termed blood, or breeding from individuals the descendants of those of approved qualities. A maxim of his was, that "like begets like"—a principle in nothing new, but never perhaps acted upon in breeding to the like degree before. He aimed at producing the large cylindrical body, in all the animals destined to be fattened, and a smallness of the head, neck, and extremities, or what is called fineness of bone. A saying of his, often quoted, is, that "all was useless that was not beef;" and hence his endeavour to lessen the quantity of what is usually termed offal. He adopted, too, the homely profit-and-loss maxim of breeding the animals large in the parts which are of most value to be sold; and hence in his breed of cattle he made the shoulders comparatively small, and the hind quarters proportionally large. He had a thorough confidence in his own judgment, and relied entirely upon his own resources. In the whole series of his numerous experiments, he appears to have consulted, and

even trusted, no one. It is said that his only confidant was an old shepherd, who alone knew what animals were covered, and with what blood. Although young gentlemen resided with him for the purpose of receiving instruction, they knew nothing of the course of his experiments; and when it is mentioned that amongst these individuals were the present distinguished EARL of LEICESTER, Mr CULLEY, Mr BUCKLEY, and others likely to take a deep interest in the proceedings, it will be seen what a methodised system of caution and secrecy was pursued. He seems to have obtained the respect of those connected with him for his character and judgment, but within the circle of reserve which he cast around him, where his own proceedings were concerned, no one was permitted to pass; and, strange to say, he left not behind him a single written record of his curious experiments. It is not probable that this can be ascribed to any higher motive than the selfishness of a trader, careful to prevent others from profiting by his acquired knowledge. But yet it manifested a certain strength of character, and may show that BAKEWELL, though actuated by ordinary motives, was not an ordinary man. He struck out for himself a new course of action, and carrying on a long course of peculiar experiments, ultimately succeeded, and laid down by his example principles which experience has since proved to be sound. There had not before been another BAKEWELL, and all who have sought the same end have but followed in his track. Amidst many disappointments he never despaired of his ultimate purpose, but bore up against ridicule, neglect, and predictions of failure, till the end. He was at one time involved in great pecuniary difficulties, but at length he succeeded in all his plans, and left a competent fortune to his successors. Even after he had succeeded in perfecting his stock, he kept all kinds of animals in his park, and was constantly engaged in his favourite experiments. He died, universally regarded as the most successful breeder that this country had produced, in his 70th year.

Much fruitless inquiry has arisen regarding the precise course followed by BAKEWELL in forming his breed of Long-horns. The opinion seemingly founded on the best authorities is, that he obtained some of his first cows from Mr WEBSTER of Canley, but that he likewise selected elsewhere the best animals, male and female, that he could obtain. He is said to have purchased amongst others, a very fine cow from Sir WILLIAM GORDON of Garrington, near Loughborough, and from her to have had a fine bull, which he called Twopenny, because a person had observed of him that he was not worth twopence. This bull became the most celebrated of the early stock of BAKEWELL, and is constantly referred to in the pedigree of the improved Long-horns. It must be observed, however, that other accounts are given of the descent of Twopenny; and that much uncertainty necessarily exists in everything that relates to the origin of the Dishley stock, since this was precisely the point of practice which BAKEWELL himself desired to involve in mystery.

Mr BAKEWELL adopted the practice of breeding from animals without relation to their affinities in blood, in a degree which had perhaps never before been attempted. He probably adopted this system from the very commencement of his experiments, and ultimately confined himself entirely to his own herd; one exception only being recorded, when, at a late period, he bought a cow from Mr HARRIS, a descendant, however, from the Dishley stock. The effect was, that he gave a permanent uniformity to the characters of his animals, and formed, after a time, a distinct and well-defined breed. Further, the effect of continually breeding from animals near of blood is attended with the effect of giving a delicacy of temperament and form to the progeny. It diminishes the size of the bones, and produces, as it were, a tendency to arrive at premature age. The animals getting soon old, arrive quickly at maturity of bone and muscle, which is the very end aimed at by the breeder. BAKEWELL probably adopted the system from the mere desire of preserving the properties of form which his stock had acquired; but he would learn by experience in the sequel, that the effect was likewise to produce a more complete development of those properties.

The success of BAKEWELL called other breeders into the field. Of these the earliest and most distinguished was Mr ROBERT FOWLER of Little Rollright, in the county of Oxford. Mr FOWLER purchased several heifers from Mr WEBSTER of Canley, and hired the bull Twopenny from Mr BAKEWELL, from which stock he bred several fine cows. He continued to hire bulls from Mr BAKEWELL, and in particular one in the year 1778 or 1779, called D, which, by one of his first cows of the Canley stock, produced a bull termed Shakspeare, the most celebrated in the annals of the improved breed, and continually referred to in the pedigrees of the stock. Mr FOWLER became the breeder of numerous other fine bulls. His splendid stock was sold in the year 1791, at high prices.* Mr PRINCEP of Croxall, and numerous other individuals, acquired and bred from the Dishley stock; and

---

* Garrick, a bull, 5 years old, by Shakspeare, of Broken-horn Beauty, which came of Long-horn Beauty, brought, L.215 0 0
Sultan, 2 years old, by Broken-horn Beauty, ... 220 10 0
Washington, by Shakspeare, out of Washington's mother, ... 215 5 0
Young Sultan, one year old, by Garrick, ... 210 0 0
Brindled Beauty, a cow by Shakspeare, of Long-horn Beauty, ... 273 0 0
Cow by Shakspeare, of Broken-horn Beauty, ... 120 15 0
Cow by a son of old D, brother to Shakspeare, ... 194 5 0 &c.

the rearing of bulls for hiring and sale became a distinct branch of the profession, by which means the influence of the new breed was extended in a surprising degree. The midland counties became the great centre from which it extended beyond the limits which the older Long-horns had occupied in the country. The effects were beneficial in a high degree. The Dishley Breed itself, indeed, has now lost the favour which it once possessed; but the traces of its influence remain in the parts of the country in which the Long-horned breed is still cultivated.

The Dishley Breed is of good size, but generally inferior in weight to the old Lancashire Long-horns, the Short-horns, and Herefords. The horns for the most part bend downwards by the side of the head, having more the appearance of bent hoops than arms of defence. The shoulder is well formed, the neck remarkably thin, the head fine, and the limbs are moderately short and small boned, in which respect the artificial differs from the natural breed. The skin, though thick, is soft, and the hair usually reddish brown, with more or less of white on different parts. The ribs are remarkably well arched, forming a fine cylindrical trunk; the loin is moderately broad, and the hind quarters are long. The animals are docile, easily maintained on ordinary food, and readily fattened. The flesh has never entirely lost that darkness of colour distinctive of the unimproved race, and the fat is less mixed with the muscular parts than in any other kind of British cattle. The tendency of the fat to accumulate on the rump is so great, as to produce a kind of deformity in the fattened animal; yet this character might not of itself be regarded as an imperfection, were it not indicative of the general tendency of the fatty tissue to remain separate from the muscular. The fat, too, retains the tinge distinctive of the older race; so that it became a familiar remark of the opponents of BAKEWELL, that breed as he might, he would not get rid of the black flesh and yellow fat of the Long-horns. The cows are eminently deficient in their power of yielding milk. They are in this respect greatly inferior to the older Long-horns, and are scarcely ever used for the purposes of the regular dairy. The character of the beef, and the deficiency in the females of the power of yielding milk, are the most manifest defects of this breed; and notwithstanding all the care bestowed on the formation of it, few individuals of the race are now reared in England for the purpose of grazing. The breeders of the pure Dishleys confine themselves chiefly to the rearing of bulls and cows for the purpose of breeding; and the really beneficial influence of the stock has been the crossing of the older and coarser kinds yet reared in different parts of the country. In this latter respect the Dishley stock has been of great economical importance; but the breed itself, in its state of purity, is deficient in the really useful properties of a grazing stock. It has been questioned whether BAKEWELL acted with judgment in taking the Lancashire Long-horns as the basis of his new breed. There is little ground, however, for impugning, on this account, the judgment of BAKEWELL. The Long-horned Breed was then regarded as the most valuable in the kingdom; and it was a natural course for an original improver to endeavour to form a superior one on its basis. The modern Herefords were not then called into existence, and the Short-horns were a coarse race of no estimation beyond the limits of a few districts. BAKEWELL therefore adopted what must have seemed at the time a fitting course; and no one will deny, that in what he attempted, he succeeded, to the utmost extent which the natural characters of the pristine race allowed.

This description of the once celebrated Dishley Breed will account for the singular fact, that its reputation has passed away, even more quickly than it was acquired. It has given place to other breeds, possessing characters as grazing stock, in which it is deficient. A few eminent breeders still employ themselves in the rearing of bulls, chiefly for exportation to Ireland; but the numbers of the breed reared in England are continually diminishing, and the time will probably arrive when all that remains of the breed of Dishley will be the record of a bold, curious, and interesting experiment. On the very farm on which Mr BAKEWELL'S original experiments were instituted and completed, and within many miles around, there does not exist a single bull, cow, or steer of the breed which he had cultivated with so much labour. Its history forms a singular contrast with that of another race of animals which he had formed by similar means, namely, his breed of Sheep, which has extended over all the kingdom, and which remains established as one of the most important additions to the domestic animals of these Islands.

The history of the breed of BAKEWELL has shown, beyond anything before attempted, the power of cultivation over the form and properties of animals, and has shown us, too, the limits within which the efforts of art must often be confined. BAKEWELL looked to the property of acquiring fat as the essential one to be aimed at in breeding. He acquired for his beautiful stock this property in an eminent degree, but he acquired it in excess. The fat mingled less with the lean than even in the older race, spreading itself in a thick layer under the skin, and even accumulating in a cushion upon one part of the body. "Having painfully, and at much cost," observes an amusing writer, "raised a variety of cattle, the chief merit of which is to make fat, he has apparently laid his disciples and successors under the necessity of substituting another which will make lean." Looking to this property of making fat as the sole end to be aimed at, this eminent breeder disregarded other properties which, though they may be said to be secondary, are yet a necessary element in the economical value of a breed of cattle.

Drawn by Mr. Nicholson, R. S. A. from a Painting by Mr. Shiels, R. S. A.

Drawn on Stone & Printed by Fairland, 45 St. Johns Sq.

THE SHORT-HORNED BREED.

Bull, Hecatomb, bred by the Right Honourable Earl Spencer;—by Kirby, dam by Monarch, grandam by St Albany &c

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London, Published February 1842 by Longman, Brown, Green & Longman, Paternoster Row.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels R.S.A.

Drawn on Stone & Printed by Fairland, 45 St. John's S.

THE SHORT HORNED BREED.

Cow, bred by Mr. Hunt, Thornington;-by Reformer, dam by Raby, grandam by Sir Oliver &c.

PROFESSOR LOWS ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London, Published February 1842, by Longman, Brown, Green & Longmans, Paternoster Row.

THE SHORT-HORNED BREED.

PLATE XIX.

BULL, Hecatomb, bred by the Right Hon. EARL SPENCER; by Kirby; dam by Monarch; g. dam by St Albany; g. g. dam by Jupiter; g. g. g. dam by Sir Oliver; g. g. g. g. by Trunell; g. g. g. dam by Favourite; g. g. g. g. g. g. dam by Favourite; g. g. g. g. g. g. g. dam by Dalton Duke; g. g. g. g. g. g. g. g. dam (Old Favourite) by Mr ALCOCK'S Bull; g. g. g. g. g. g. g. g. g. dam by JACOB SMITH'S Bull; g. g. g. g. g. g. g. g. g. g. dam by JOLLY'S Bull.

PLATE XX.

COW, bred by JOHN HUNT, Esq. Thornington;—by Reformer; dam by Raby, a grandson of Comet; g. dam by Sir Oliver, bred by Mr CURRY of Brandon.

While Ireland and the western parts of England have been possessed, for an unknown period, of a race of cattle having long horns, and furnished with thick skins and abundant hair, fitted to protect the animals from long continued rains, the eastern and drier districts towards the German Ocean have been inhabited by varieties of cattle having thinner skins, shorter hair, and horns comparatively short. In the fens of Lincolnshire, and the other tracts of alluvial country towards the Wash, the cattle were of great bulk and coarse figure, and had usually a dingy colour of the skin, and short blunt horns. More inland, and following the course northward of the Vale of Trent, and thence across the Ouse, through the central plains of Yorkshire, to the river Tees and beyond it, the cattle assumed a less gross and unwieldy form, but were still a very tall race, of varied colours, with horns of medium length, but which might be termed short with relation to the same parts of the Long-horned breed. In comparing these varieties of cattle with the races of the opposite continent, the large dingy breed of the Fens may be compared with the native black cattle of the flats and marshes of Holland, and the more varied kinds north of the Humber, with those of Holstein and Jutland, whence the finest cattle of the north of Europe have been derived. It is not unreasonable to believe, that the latter, during the early period of Saxon colonization, may have been brought to the country by the Jutes and Angles who settled in this part of England. But however this may be, no other race of cattle except that which may be termed Short or Middle-horned, has ever, within the period of any known records, inhabited the Fens and north-eastern parts of England.

But at a long subsequent period, near our own times, it appears that cattle were frequently brought from the opposite continent, and mingled with the native varieties. They were chiefly imported from Holland, the Cows of which country were the most celebrated of all others in the north of Europe for the abundance of their milk and the uses of the dairy. The earliest importations seem to have been made to the country of the Humber, where the port of Hull maintained a constant and extended intercourse with Hamburgh and the United Provinces. The Dutch Breed was especially established in the district of Holderness, on the north side of the estuary of the Humber, whence it extended northward through the plains of Yorkshire; and the cattle of Holderness still retain the distinct traces of their Dutch original, and were long regarded as the finest dairy cows of England. Farther to the north, in the fertile district of the Tees, importations likewise took place of the cattle of the opposite countries, sometimes from Holland, and sometimes, by the way of Hamburgh, from Holstein, or other countries of the Elbe. Sir WILLIAM ST QUINTIN of Scampston is said to have procured bulls and cows from Holland, for the purpose of breeding, previous to the middle of last century; and at a later period, Mr MICHAEL DOBINSON, in the county of Durham, visited Holland for the purpose of selecting bulls of the Dutch breed. Other persons had resorted, for their breeding cattle, to Holstein, whence the finest of the Dutch breeds have themselves been derived. Of the precise extent of these early importations we are imperfectly informed; but that they exercised a great influence on the native stock, appears from this circumstance, that the breed formed by the mixture became familiarly known as the Dutch or Holstein Breed, under which names it extended northward through Northumberland, and became naturalised in the south of Scotland. It was also known as the Teeswater, or simply the Short-Horned, Breed.

THE SHORT-HORNED BREED.

Improvers of the Teeswater Short-horns existed early in the last century, both in Durham and the neighbouring parts of Yorkshire. One of these, Mr MILLBANK of Barningham, was early noted for the excellence of his stock, some records of which have come down to us, showing the great weight at which individual animals from time to time arrived. Mr DOBINSON, before referred to, became likewise a very successful breeder, and various other gentlemen are noted as improvers of the Teeswater Breed, chiefly after the successful experiments of BAKEWELL had excited a spirit of emulation in this species of improvement. Up to the period of the American war, however, the Teeswater Breed had not gained greatly in public estimation, beyond the district to which it had early extended. Great size seems to have been chiefly aimed at by the breeders, and the animals, though valued on this account, were of forms comparatively coarse, great consumers of food, and deficient in many of those points which are now regarded as essential in a well-formed ox. In the qualities of form and disposition to fatten readily, the Short-horned Breed fell short of that which BAKEWELL had already perfected in the midland counties, although excelling the latter in the quality of the flesh, in the production of internal fat or tallow, and in the adaptation of the females to the uses of the dairy.

The improvement of the Teeswater Short-horns, however, had been continually advancing in the hands of the breeders who cultivated it, when CHARLES and ROBERT COLLING of Darlington became its ultimate improvers, removing, with admirable skill, the defects which it inherited, and communicating to it properties which it did not before possess in the same degree. These individuals had become considerable farmers soon after the year 1770. Mr CHARLES COLLING, the younger brother, is justly regarded as the founder of the new breed, although his elder brother followed him in his course of enterprise and improvement, step by step. CHARLES COLLING cannot, indeed, be compared with BAKEWELL for boldness and originality of design, but he was greatly more fortunate than his precursor in the selection of a basis for his breed. COLLING, like BAKEWELL, seems to have regarded size in his animals as a quality secondary and subordinate to those which he wished to communicate, and to have directed almost exclusive attention to beauty and utility of form, and development of the properties of early maturity and facility of fattening. Having, by selection and the skilful conjunction of the best individuals for breeding, become possessed of animals with the properties sought for, he continued to breed from his own stock, disregarding affinities of blood; by which means he gave to it the necessary permanence of characters, and that delicacy of form, which this system of breeding tends to communicate. He adopted the practice of hiring out his bulls, by which means he realized a competent fortune, and extended the influence of his stock to the districts around him.

The information possessed by us regarding the early practice of COLLING, in his course of improvement, is meagre and obscure, since he himself manifested a great dislike to throw any light on his views and practice. It is generally believed, that the first radical improvement which he effected on his stock, was through the medium of a young bull, which he acquired by a kind of chance. This animal is said to have been a calf belonging to a poor man who grazed his cow on the sides of the highway. The calf was purchased from its owner by Mr WAISTEL and Mr ROBERT COLLING, and soon afterwards transferred to CHARLES, whose sagacity led him to perceive the value of the young animal. He seems, likewise, to have acquired the cow, which, however, on being removed to superior pastures, became so fat that she did not again breed. The calf inherited the same property, and as he grew up became so fat as to be useful as a bull only for a short time. This bull was termed Hubback. He was below the ordinary size of the Teeswater cattle, but his points and touch were admirable, and he is generally regarded as the father of the improved Short-horns. However this may be, COLLING, from this period, continued to produce many fine bulls, as Petrarch, Bolingbroke, Favourite, Comet, and others whose names are quoted in the pedigrees of the Short-horned Breed, in the same manner as those of the Darley Arabian, and Godolphin Barb, in the case of Horses of the Turf. The properties of his stock thus became more and more appreciated throughout the district of the Short-horns, and, about the year 1800, had begun to extend to distant parts of the country, where hitherto the Short-horned Breed had not been cultivated. A circumstance, apparently trivial, contributed in a considerable degree to this result. A fine animal, termed the Durham Ox, the son of Favourite by a common cow, was sold for public exhibition, and carried in a caravan to all parts of the country. He was exhibited in this manner for nearly six years, and excited much interest amongst the country people. He arrived at great weight, but was chiefly remarkable for the fineness of many of his points. When killed, after two months' illness, during which he had lost considerably in flesh, he weighed 165 stones 12 lb., besides tallow and offal.

COLLING, by continually breeding from his own stock, seems to have pushed refinement in breeding to its limits, and probably began to experience that impairment of constitution in his animals which never fails to accompany a continued and forced intermixture of blood, in a limited number of individuals. Whether from this cause, or from a mere desire to try experiments, it is understood that he attempted various crosses with the cows of other breeds, and chiefly, it is said, with the Scotch Highland and the Galloway. The experiment with the former did not succeed, but that with the latter led to a remarkable result. COLLING procured a fine

HISTORY.

agile kind of Ass is found. In Cairo, numbers of them are to be seen standing ready saddled for hire, serving the same purpose as hackney-coaches with us. They are treated by their owners in the same manner as horses, rubbed carefully, and fed on chopped straw, beans, and barley. They are healthy, cheerful, and gentle, and the safest animals that can be ridden. Their usual pace is a pleasant amble, and they carry their riders rapidly and without fatigue from place to place in the straggling city. The Asses of the caravans of the interior frequently arrive in Egypt, after having carried their riders sixty days and more through the deserts, as fresh as if they had started the day before. It is in situations like these that the services which this creature renders save him from the unmerited contempt which elsewhere accompanies him.

Of the Asses of European countries, those of Greece, Italy, and Spain, have long possessed the greatest reputation for their superior qualities. Greece had the means of obtaining the Asiatic races from the countries on the Black Sea and the Caspian. Those of Arcadia are celebrated by early writers, and Cappadocia is mentioned as supplying Greece with a valuable race. The breeds of modern Greece and the islands of the Archipelago, though treated with the neglect with which every thing useful is treated in those countries, are still greatly superior to those of the northern parts of Europe. The Romans paid extreme attention to the rearing of this animal; and in the days of the Empire paid enormous sums for procuring those that were the most beautiful and of the finest races. Italy still produces Asses of a valuable kind. But of all the countries of Europe, Spain is the most distinguished for these animals. Many of them are fifteen hands high, and of corresponding strength and fine figure. The communication of this country with the East and with Africa, doubtless produced an early attention to the race; and the extensive employment of the Mule has since caused an extreme care to be devoted to the rearing of the parent stock. The Asses of Spain are more numerous than the horses.

In the New World, the Ass, like all the domesticated animals of the Old, has found a habitation suited to his condition. He is sometimes employed in the bearing of travellers and burdens through the terrible passes of the Andes, and then he manifests his courage, his fidelity, and his sagacity. He bears his rider along the ledge of the precipice, where the foot can scarcely find a resting-place, and where a false step would entail destruction upon both. Sometimes he descends declivities so steep and dangerous that they seem impassable. The faithful creature stops when he arrives at the edge of the descent, pauses, and will not move until he has prepared himself for the danger. He views the path before him, and at length, bringing his hinder legs beneath him, he glides down the precipice with frightful rapidity. He follows the winding of the path as if he had fixed in his mind the very track he was to follow. The rider trusts all to his guidance: the slightest check of the rein might disturb the equilibrium, and cause both to be hurled down the abyss.

In the British Islands, asses are in great numbers, chiefly used by the poorer classes. The animal seems to have been known in England even during the reign of the Anglo-Saxon Kings, but their numbers were very small; for even in the reign of ELIZABETH they were regarded as foreign to the land. During the reign of JAMES I., however, they had become common. They are now an object of economical importance. They are chiefly, indeed, the property of the poor; but whoever owns them, they are beasts of useful labour, largely used by a numerous class, and meriting more attention than they have yet received. Great numbers of she-asses are kept about London and the larger towns, for the purpose of supplying a mild, salutary, and nutritive liquid to the infirm.

Although the Ass does not well support the temperature of the higher latitudes, yet beyond a question the breed could be greatly improved even in countries colder than our own. Were a proper selection to be made of the parents for breeding, and were the young to be properly fed, so that their form might be developed, and were they to be sheltered from the inclemency of the weather in the same manner as the Horse, we should succeed in rearing asses greatly superior in strength and spirit to the diminutive creatures which we see on our highways and commons. The animals, indeed, are mostly in the hands of those who have not the means to procure proper males, or pursue a right system of management; but on this account it is the more important that some attention should be paid to the subject by the wealthier classes. Our commercial relations with Spain and the Levant would enable us, at no great cost, to improve the defective races of the country by the easiest means.

Besides the direct services which the Ass can render to us as a beast of burden, he is endowed with the faculty of propagating a race of animals superior to himself in strength, and equal in sagacity, patience, and fortitude. The Mule is a creature invaluable in the countries in which he is reared for his many and varied services. In Spain, he is the beast of burden the most generally used and esteemed. He is employed in coaches and chariots of all kinds, and used for the saddle even by people of condition, as safe, hardy, and suited to distant journeys. In a rocky and precipitous country he is, of all known animals, the best adapted for the carrying of loads. He has the mountain habits of the Ass with the strength of his other parent. Countries divided from one another by high and precipitous mountains would remain separated in intercourse but for this hardy creature. In the transporting of merchandise across the dreadful cliffs of the Andes and Cordilleras, no animal can be compared with the Mule. The parent

HISTORY.

Mingled with the Gnoos, the Elands, the Caamas, the Camelopards, and all the beautiful species of Antelopes, they gladden the face of the wilderness, and give an aspect truly African to the scene; whilst Lions, Leopards, Hyænas, Jackals, and other Feræ, restrain their numbers within fitting limits. Captain HARRIS, in his Account of the Interior, gives vivid portraitures of the mass of life which those wild scenes sometimes present. "On the morning of the 9th October," says he, "when the waggons had started on their way to the Meristane River, our next stage, I turned off the road in pursuit of a troop of Brindled Gnoos, and presently came upon another, which was joined by a third still larger, and then by a vast herd of Zebras, and again by more Gnoos, with Sassabys and Hartebeests, pouring down from every quarter, until the landscape literally presented the appearance of a moving mass of game. Their incredible numbers so impeded their progress, that I had no difficulty in closing with them, dismounting as opportunity offered, firing both barrels of my rifle into the retreating phalanx, and leaving the ground strewed with the slain." Again, in describing his further hunting in the country of the Meristane River,—"We soon perceived large herds of Quaggas and Brindled Gnoos, which continued to join each other until the whole place seemed alive. The clatter of their hoofs was perfectly astounding; and I could compare it to nothing but to the din of a tremendous charge of cavalry, or the rushing of a mighty tempest. I could not estimate the accumulated numbers at less than 15,000, a great extent of country being actually chequered black and white with their congregated masses. As the panic caused by the report of our rifles extended, clouds of dust hovered over them, and the long necks of troops of ostriches were also to be seen towering above the heads of their less gigantic neighbours, and sailing past with astonishing rapidity. Groups of purple Sassabys and brilliant red and yellow Hartebeests likewise lent their aid to complete the picture." "The savages kept in our wake, dexterously despatching the wounded Gnoos by a touch on the spine with the point of an assagai, and instantly covering up the carcasses with bushes to secure them from the voracity of the vultures, which hung about us like specks in the firmament, and descended with the velocity of lightning, as each discharge of our artillery gave token of prey."

Turning from these regions of life to the elevated deserts of the great plateau of central Asia, we find another creature of the Equine tribe, the Dziggithai, or Horse of Tartary. This fine creature is frequently called the Wild Mule, from his resemblance to the hybrid progeny of the Horse and Ass. He was termed Hemionos, or Half-Ass, by the Greeks, to whom he was known from his being formerly found in Arabia, and in the deserts of Syria, and in Asia Minor. He is chiefly found in the countries bordering on the Great Desert of Kobi, and extending eastward through Chinese Tartary. His stature is that of the Mule, but he is much more graceful and swift. His fur is of a uniform bay or fawn colour, long in winter, but smooth and glossy in summer. He has a soft bushy mane, which extends from the nape to the withers, and his tail is terminated by a tuft of hairs about a foot in length. Like the Horse in the wild state, he lives in troops, migrating from place to place, mainly in the open plains, and rarely approaching the forest. These animals are hunted by the people of the desert for their skins and flesh. They have the senses of sight and smell in exquisite perfection, and when put to flight they dart along with the swiftness of the antelope. They have never been reduced to domestication. It is said that when taken young they can be subdued to a certain degree, but never resign the wildness of their nature.

But of all the species of Horse, that which most concerns the interests and enjoyments of mankind is the Common or Domestic HORSE. This creature is not more remarkable for the grace and nobleness of his form, for his strength, agility, and swiftness, for his boldness and spirit, than for the docility with which he resigns his vast powers to the service of mankind. The subjection of the noble creature is complete; but it is not the degradation of unwilling bondage, but the instinctive surrender of physical powers for the purposes for which they were given. If we can read design at all in the functions of the animal economy, we must believe that the Horse has been formed for the service of mankind, and has had the faculties assigned to him which are fitted for that end. His vast strength, his courage, his powers of rapid progression, would avail us nothing, were he not endowed with a temperament which causes him to submit his actions to the control of superior reason. Were he like the Zebra of the African mountains, or the Dziggithai of Eastern Tartary, he would be the subject of persecution and the chase, instead of being an instrument of civilization, by augmenting our means of mutual intercourse, and increasing our command over the objects which surround us. Nature has not formed this powerful creature to shun the control of man, but has linked him by his natural wants and instincts to our society. It is only when under human guidance that his most useful faculties are exercised, and his full maturity of strength and form attained. The natural state of the Horse, it may be said, is not that of freedom, but of domestication.

The Horse is distinguished from all the others of the Equine genus, by the superior expansion of his chest, the larger development of his muscles, the greater strength and lateral distance of his limbs, the elevation of his withers, the long and flowing hairs of his mane and tail, and his loud and sonorous voice. He is herbivorous, and delights in the fruits of the gramineous and leguminous plants,—as of the oat, the wheat, the maize, the rice, the bean, the pea. He partakes too of succulent roots and tubers,

THE SHORT-HORNED BREED.

Galloway cow, of a red colour, and this cow was covered by one of his best bulls, a grandson of Bolingbroke. The produce was a bull-calf, which in due time was conjoined with a fine Short-horned cow, Johanna. The produce of this union was likewise a bull-calf, which, in the fitting time, was put to another fine Short-horned cow, Lady, from whom has descended a family termed, in reproach, the Alloy. The family of the Alloy, however, has proved not inferior to those of what are termed pure blood. At the sale of Mr COLLING'S stock, which took place in 1810, this cow, Lady, with her descendants, sold at enormous prices, showing that, in the estimation of the public, the Galloway cross had not impaired the excellence of the pure stock. Thus it appears that by a single cross with another race, and then by breeding back again to the superior one, no injury was sustained; nay, a fresh infusion of vigour was probably made into the parent stock. Similar results are common in the breeding of horses, dogs, and other animals. The proceeding, in the case of COLLING, was nothing more than a rash experiment, the favourable result of which should not diminish the caution of breeders, in preserving the purity of a family of animals whose characters have been established.

The whole of the unrivalled stock of COLLING was sold in the year 1810. The particulars of this sale have been long familiar to the breeders of this country. It is important, as a record of the successful result of the experiments of COLLING, of the high estimation in which his stock was held by English breeders, and as enumerating the names of animals, most of which are continually referred to in the pedigrees of the breed.*

Contemporaries and successors of COLLING followed the same course of improvement. His brother, Mr GEORGE COLLING, was very distinguished as a breeder, although his stock did not altogether reach the high reputation at which the other had arrived. It was sold, however, in the year 1818, at great prices:—

34	Cows produced the sum of	4141 guineas.
17	Heifers,	1287 do.
6	Bulls,	1343 do.
4	Bull-calves,	713 do.
61		7484 guineas.

Up to the present time, the breed of COLLING has maintained its early reputation, and extended its influence to most parts of the kingdom where the natural or acquired fertility of the country is favourable to its cultivation. It is usually termed the Short-horned Breed, but modern breeders frequently term it the Durham Breed, as indicating the part of the country where it was perfected, and as distinguishing it from the older varieties of Short-horns, and the less improved ones yet existing. It

---

* LIST of SHORT-HORNED CATTLE the property of CHARLES COLLING, Esq., sold October 11. 1810.

COWS.

NAMES.	Out of	Got by	Cows' Age.	Sold for Gs.	Bought by
Cherry	Old Cherry	Favourite	11	83	J. D. Nesham, Esq., Houghton-le-Spring, Durham.
Kate		Comet	4	35	Mr Hunt, Morton, Durham.
Peeress	Cherry	Favourite	5	170	Major Rudd, Marton, Yorkshire.
Countess	Lady	Cupid	9	400	Do.
Celina	Countess	Favourite	5	200	Sir H. Ibbetson, Bart., Denton Park, Yorkshire.
Johanna	Johanna	Do.	4	130	H. Witham, Esq., Cliff Hall, Yorkshire.
Lady	Old Phœnix	A grandson of Lord Bolingbroke	14	206	C. Wright, Esq., Cleasby, Yorkshire.
Laura	Lady	Favourite	4	210	Mr Grant, Wyham, Lincolnshire.
Cathelene	A daughter of the dam of Phœnix	Washington	8	150	G. Parker, Esq., near Malton, Yorkshire.
Lily	Daisy	Comet	3	410	Major Rudd, Marton, Yorkshire.
Daisy	Old Daisy	A grandson of Favourite	6	140	R. Bower, Esq. Welburn, Yorkshire.
Cora	Countess	Favourite	4	70	G. Johnson, Esq., near Scarborough.
Beauty	Miss Washington	Marsk	4	120	C. Wright, Esq. Yorkshire.
Red Rose	Eliza	Comet	4	45	W. C. Fenton, Esq., near Doncaster.
Flora		Do.	3	70	Earl of Lonsdale.
Miss Peggy		A son of Favourite	3	60	O. Gascoigne, Esq., Parlington, Yorkshire.
Magdalene	A heifer by Washington	Comet	3	170	—— Champion, Esq., Blyth, Nottinghamshire.
				2669	

BULLS.

NAMES.	Age.	Out of	Got by	Price. Gs.	Bought by
Comet	6	Phœnix	Favourite	1000	Messrs Wetherill, Trotter, Wright, and Charge, near Darlington.
Yarborough	9		Do.	55	A. Gregson, Esq., Lowlinn, Northumberland.
Major	3	Lady	Comet	200	—— Grant, Esq. Wyham, Lincolnshire.
Mayduke	3	Cherry	Do.	145	—— Smithson, Esq.
Petrarch	2	Old Venus	Do.	365	Major Rudd.
Northumberland	2		Favourite	80	Mr Buston, Coatham, Durham.
Alfred	1	Venus	Comet	110	Mr Robinson, Acklam, Yorkshire.
Duke	1	Duchess	Do.	105	A. Compton, Esq., Carham, Northumberland.
Alexander	1	Cora	Do.	63	W. C. Fenton, Esq. near Doncaster.
Ossian	1	Magdalene	Favourite	76	Earl of Lonsdale.
Harold	1	Red Rose	Windsor	50	Sir C. Loraine, Bart. Northumberland.
				2249	

THE SHORT-HORNED BREED.

is the practice to preserve and record the pedigrees of the animals employed in breeding, their descent being usually deduced from the stock of some distinguished breeder, and traced, more or less remotely, to that of the COLLINGS. Various breeders devote their attention exclusively to the rearing of bulls, as was practised by BAKEWELL and the breeders of the Dishley stock; but innumerable agriculturists, in the ordinary practice of the farm, bestow assiduous care on the perfecting of their stock by selection and careful culture, so that increasing numbers of animals, of the first class, are now every year produced throughout the country.

The Durham, or improved Teeswater Breed, differs nearly as much from the older cattle of the Tees as the Dishley Breed of Long-horns from the older race from which it was derived. The height is less, but the trunk is more round and deep; the limbs are shorter in proportion to the depth of body, and the chest, back, and loin, more broad, so that with less apparent bulk of body the weight is usually greater. The skin is light-coloured, and the hair reddish-brown or white, either separate or mixed. The muzzle is flesh-coloured, and rarely black, the appearance of which colour on the skin indicates the revival of a character of the older varieties, which modern breeders study to exclude. The horns are shorter than in the former breed, light-coloured, blunt, and sometimes laterally flattened. The skin is soft to the touch, the general form square and massive, the shoulder upright, and the hind-quarter large. The uprightness of the shoulder produces a hollowness behind, which does not exist in the same degree in the Devons, the Herefords, and other varieties allied to them. The uprightness of the shoulder is regarded as a defect, but it were more correct to say that it is a character in harmony with the squareness of form distinctive of the breed. Although COLLING preferred cattle of a medium size, yet the breed being derived from one of great bulk of body, there is a constant tendency to the production of large animals. The breed communicates its characters readily to all others, and the first progeny, even with races the most dissimilar, is usually fine. The females retain, in a considerable degree, the properties of the Holstein race, in yielding a large quantity of milk, in which respect they greatly excel the Long-horns, the Herefords, and the Devons. In the property of yielding milk, however, the new breed is inferior to the older and less cultivated one, showing that refinement in breeding, and the greater tendency to produce fat, are unfavourable to the secretion of milk. Individual cows, indeed, are found to retain the milching properties of the older race, but this is an exception to the common result. The Oxen are eminently distinguished by the property of arriving at early maturity of muscle and fatness. Great numbers of them are now disposed of at the age of about twenty-four months, in the highest perfection, and of a weight at which no other cattle in Europe arrive at the same age.

This highly cultivated breed, it has been seen, extended from the district of the Tees, as from a centre, as soon as its value became known. It quickly spread northward all through Durham and Northumberland into the valley of the Tweed, and in later years, it has extended northward through the eastern lowlands of Scotland to the Pentland Firth, and is now mingling with

BULL-CALVES, UNDER ONE YEAR OLD

Names.	Out of	Got by	Price. Gs.	Bought by
Ketton	Cherry	Comet	50	R. Bower, Esq. Wellburn, Yorkshire.
Young Favourite	Countess	Do.	140	—— Skipworth, Esq., Lincolnshire.
George	Lady	Do.	130	—— Walker, Esq., Rotherham.
Sir Dimple	Daisy	Do.	90	T. Lax, Esq., Ravensworth.
Narcissus	Flora	Do.	15	C. Wright, Esq. Cleasby, Yorkshire.
Albion	Beauty	Do.	60	T. Booth, Esq., near Catterick, Yorkshire.
Cecil	Peeress	Do.	170	H. Strickland, Esq., Boynton, Yorkshire.
			655	

HEIFERS.

Names.	Age.	Out of	Got by	Price. Gs.	Bought by
Phœbe	3	Dam by Favourite	Comet	105	Sir H. Ibbetson, Bart. Denton Park.
Young Duchess	2	Do.	Do.	183	T. Bates, Esq., Halton Castle, Northumberland.
Young Laura	2	Laura	Do.	101	Earl of Lonsdale.
Young Countess	2	Countess	Do.	206	Sir H. Ibbetson.
Lucy	2	Dam by Washington	Do.	132	C. Wright, Esq. Cleasby.
Charlotte	1	Cathelene	Do.	136	R. Colling, Esq.
Johanna	1	Johanna	Do.	35	G. Johnson, Esq., Yorkshire.
				898	

HEIFER-CALVES, UNDER ONE YEAR OLD.

Names.	Out of	Got by	Price. Gs.	Bought by
Lucilla	Laura	Comet	106	—— Grant, Esq. Wyham, Lincolnshire.
Calista	Cora	Do.	50	Sir H. V. Tempest, Bart., Winyard, Durham.
White Rose	Lily	Yarbro'	75	K. Strickland, Esq. Boynton, Yorkshire.
Ruby	Red Rose	Do.	50	R. Bower, Esq. Welburn.
Cowslip		Comet	25	Earl of Lonsdale.
			306	

BAILEY'S *Report on the County of Durham.*

the native breeds. It soon extended southward through Yorkshire, where it was cultivated on the largest scale. The district of Holderness, it has been said, early obtained cows from Holland, and became distinguished beyond any other part of England for the excellence of its dairy stock. Many cows of the Holderness variety are yet to be found, but generally they have been more or less mixed with the Durham blood. The effect has been to improve their form, but to impair their milching properties; nevertheless, the modern Holderness still stand in the first rank of dairy-cows, and the great London dairies are chiefly supplied by them. The Durham Breed extended likewise across the Humber, and was largely mingled with the cattle of Lincolnshire and the neighbouring districts. Individual animals are still to be found in the Fens, with the clumsy form, dark muzzle, and dingy skin of the former race; but, generally speaking, the blood of the improved Teeswaters has been more or less infused into all the cattle of this part of England. Further, the breed has extended westward through Leicestershire and most of the midland counties, where it is either cultivated in a state of purity, or has been so mingled with the former breed as to modify or efface the Long-horn characters. It has taken root in Lancashire, Westmoreland, and other parts where the Long-horned Breed had been the most firmly established, and it has been carried to the counties bordering on Wales, where the breeds allied to the Devon had been before cultivated. It has passed into the drier counties of the Chalk, though in smaller numbers than into the central and western counties. It has been transported to Ireland, and, in an incredibly short space of time, has effected a great change in the cattle of the breeding districts. Being made to cross the native Long-horns, the first progeny is always found to be good, and this effect naturally leads the breeders to resort again to the superior race, so that after a time the traces of the Long-horns become lost. This breed, so highly valued at home, has been carried to the Continent of Europe, to the United States of America, where it is cultivated with perfect success, and to the brilliant colonies of England, now rising to greatness in the Southern Ocean.

The multiplication, in this country, of a breed so greatly improved by art, must be regarded as highly conducive to the improvement of this branch of rural industry. A large part of all the cattle of England consists of a mixture of races, having no uniformity of characters, and generally defective in some important points. The possession of a breed which can always be resorted to for crossing these mixed and defective races, is a great mean of improvement, applicable to a class of animals that require it the most, causing the larger cattle of the country to approach to a better model, and assume a greater degree of uniformity.

Further, the extension of the pure breed, and the multiplication of its numbers, are conducive in a high degree to its own permanence and improvement. When but a few cultivators of it were to be found, the system of breeding from animals of the same family, and from the nearest affinities of blood, could scarcely be avoided by those who wished to preserve their stock from deterioration; but now so many fine animals are reared of the same race, that no one is laid under the necessity of breeding solely from a few individuals: and in the future cultivation of the breed, hardiness, soundness of constitution, and the milching properties of the females, may all receive their due share of attention. The external form has been already brought to all the perfection which art seems capable of communicating; and now those other properties remain to be attended to, without which no further refinement of breeding will avail for the purposes of profit to individuals and benefit to the country.

The Breeds of British cattle which have been described may be thus enumerated :—

1. The Wild or White Forest Breed, derived from a race which formerly inhabited, in a state of liberty, the woods of the country. Remains of this remarkable race have been preserved for ages in the parks of opulent individuals, where the animals, herding and breeding exclusively with one another, retain the habits of their wild condition. In other cases, they have been reared in a state of domestication, when they assume the habits and essential characters of the common varieties.

2. The Breeds of the Highlands of Scotland, spread over the primary mountainous tracts of North Britain. These cattle are of small size, covered thickly with hair, hardy, and suited to a country of heaths and mountains. The finest, usually termed the West Highland Breed, are produced in the countries on the western coasts and certain islands of the Hebrides, the smallest in the central Highlands, and the largest towards the eastern coasts, in the countries mixing with, or bordering on, the plains. These hardy cattle are reared in vast numbers on the natural herbage of the mountainous country where they have been indigenous from time immemorial, and whence they are transferred, at the suitable age, to be fattened in the lower country.

3. The Zetland Breed, inhabiting the remote islands of that name and spreading over the Orkneys. These cattle appear to be of Scandinavian origin, and are of diminutive size, but fatten readily, and are valued by the consumers. The females excel the cattle of the Highlands in the faculty of yielding milk.

4. The Polled Angus Breed, allied in its essential characters to the cattle of the mountains, but increased in size by being naturalized in a country of richer herbage, where artificial food can be supplied. This breed has dark skins, and is destitute of horns. It has been greatly improved by the care of the breeders, and is reared over a considerable tract of country.

5. The Galloway Breed, inhabiting a tract of greywacke hills in the south-west of Scotland. These cattle are greatly valued for their hardiness, their adaptation to the purposes of the grazier, and the quality of their beef. They are carried in great numbers to the pastures of England, chiefly of Norfolk, whence they are transferred to the London and other markets. They have deep bodies, dark skins, and are destitute of horns.

6. The Welsh Breeds, somewhat exceeding in size the West Highland Breed, and, like it, suited to a country of hills and natural herbage. They have dark or orange-yellow skins, and are mostly of a black colour. The finest are reared in the county of Pembroke, in the district of Castle Martin.

7. The Kerry Breed, naturalized in the mountains of Kerry, but spread over all parts of Ireland. The cattle of this breed are of small size, and of various colours, with tapering horns. They subsist on scanty food, and the females, yielding milk abundantly, are valued by the poorer inhabitants for the dairy.

8. The North Devon Breed, naturalized on the higher parts of Devonshire on the Bristol Channel, but spreading through the lower country. These cattle have orange-yellow skins, fine tapering horns, and are of a deep red colour. They are of a light and graceful form, agile, and suited for active labour. They fatten with sufficient facility on good pastures and in a temperate climate, but they are inferior in hardiness, and the power of subsisting on scanty herbage, to the mountain cattle of Scotland and Wales. They increase in bulk when naturalized in a lower country, so that the breed of South Devon differs in size and aspect from that of the higher lands. The females are small, and deficient in the power of yielding milk, though the milk which they afford is well-coloured and rich in cream.

9. The Sussex Breed, a variety of the Devon, and inheriting its properties, but of larger size and less delicate form. This breed is now undergoing great improvement, but is little sought for, for the purposes of grazing, beyond the district in which it is reared.

10. The Glamorganshire Breed, proper to the county of that name, common to the high and low grounds, but only brought to perfection in the vale of Glamorgan. This breed possesses valuable qualities, and combines well the properties of milching and fattening, but the numbers of the improved variety are limited, and circumscribed in their diffusion by other breeds more generally cultivated.

11. The Herefordshire Breed, greatly valued for its fattening properties, and extensively diffused, for the purposes of grazing, in the west of England. It has a remote affinity with the Devon Breed, and the cows inherit the defect of the latter, in being small and imperfectly suited to the dairy.

12. The Alderney Breed, reared in the Norman Islands of the Channel, of small size and ungainly form, with short crumpled horns, of delicate constitution, and requiring a temperate climate, but yielding a rich and finely-coloured milk. This breed is regularly imported into England, where it is kept for the luxury of the opulent, or partially employed in the regular dairies of the countries of the Chalk.

13. The Ayrshire Breed, derived from the county of Ayr, but widely spread over the dairy districts of Scotland, and ex-

tending in considerable numbers to Ireland. This is the most numerous breed cultivated exclusively for the dairy in the British Islands. The individuals are of medium size, and of various colours, with short horns. They are capable of subsisting on ordinary pastures, and yield a large quantity of milk in proportion to their size and the food consumed.

14. The Polled Suffolk Breed, cultivated for an unknown period in Suffolk and the adjoining districts. The individuals are of medium size, with defective forms; but the cows are admirable for the quantity of milk which they yield. The breed is losing ground continually, from the want of care of the breeders, and the effects of crossing.

15. The Falkland Breed of Fifeshire, apparently derived from Holland, inheriting the milching properties of the Dutch races, but now nearly extinct in the pure state.

16. The Polled Irish Breed, of large size, and well suited to the dairy, but much scattered, and merging in the races with which it is crossed.

17. The Sheeted Breed of Somersetshire, a variety singular by the contrast of red and white colours on the body, suited to the dairy, but now in small numbers, gradually decreasing.

18. The Long-horned Breed, from time immemorial spread over Ireland and the western counties of England, still occupying a great tract of country both in the mountains and plains, and varying in size with the fertility, natural or acquired, of the districts in which it has been naturalized. It was on the basis of this widely spread race that BAKEWELL reared the beautiful Breed of Dishley, which spread over the midland counties, and extended its influence widely by crossing the older and coarser varieties. The Long-horned Breed is now giving rapid place to others better suited to the purposes of the breeder, the grazier, and the consumer.

19. The Teeswater Short-horned or Durham Breed, derived immediately from the district of the Tees, and perfected by CHARLES and ROBERT COLLING, in the county of Durham. This breed possesses a better combination of properties than any of the larger cattle yet produced in the British Islands, is everywhere extending its limits, and superseding the pre-existing breeds, or modifying their characters by intermixture.

To these breeds of British cattle might be added a numerous class of mixed characters and origin, but which rarely exist in such numbers, or exhibit such a uniform class of characters, as to admit of being regarded as true breeds. The most varied of this class are found in the countries of the Dairy, where individuals are selected for their milching properties, without reference to a common origin.

THE BREEDS

OF THE

DOMESTIC ANIMALS

OF THE

BRITISH ISLANDS

DESCRIBED BY

DAVID LOW, Esq. F.R.S.E.

PROFESSOR OF AGRICULTURE IN THE UNIVERSITY OF EDINBURGH;

MEMBER OF THE ROYAL ACADEMY OF AGRICULTURE OF SWEDEN; AND OF THE ROYAL ECONOMICAL SOCIETY OF SAXONY; HONORARY AND CORRESPONDING MEMBER OF THE ECONOMICAL SOCIETY OF LEIPSIG; CORRESPONDING MEMBER OF THE CONSEIL ROYAL D'AGRICULTURE DE FRANCE, OF THE SOCIÉTÉ ROYALE ET CENTRALE, &c.

AND

ILLUSTRATED WITH PLATES,

FROM DRAWINGS BY MR W. NICHOLSON, R. S. A., REDUCED FROM A SERIES OF PORTRAITS FROM LIFE, EXECUTED FOR THE AGRICULTURAL MUSEUM OF THE UNIVERSITY OF EDINBURGH, BY MR W. SHIELS, R. S. A.

IN TWO VOLUMES.

VOLUME II.

THE SHEEP, THE GOAT, AND THE HOG.

LONDON: LONGMAN, ORME, BROWN, GREEN, AND LONGMANS.

MDCCCXLII.

THE SHEEP.

HISTORY.

NATURALISTS have sought for the origin of the Domestic Sheep in various wild species of the genus Ovis. Those which are supposed to have given origin to the subdued races of Asia and Europe, are the Argali or Wild Sheep of Asia, and the Musmon of the south of Europe; while the origin of the sheep of Africa has been sought for in allied species proper to that Continent.

The Argali or Wild Sheep of Asia, possessing the generic characters of the Sheep, is somewhat less than the size of a stag. He has enormous horns, measuring more than a foot in circumference at the base, and from three to four feet in length, triangular, rising from the summit of the head so as nearly to touch at the root, ascending, stretching out laterally, and bending forward at the point. He has a fur of short hair, covering a coat of soft white wool. The colour of the fur externally is brown, becoming brownish-grey in winter: there is a buff-coloured streak along the back, and a large spot of a lighter buff colour on the haunch, surrounding and including the tail. The female differs from the male in being smaller, in having the horns more slender and straight, and in the absence of the disc on the haunch. In both sexes the tail is very short, the eye-lashes are whitish, and the hair beneath the throat is longer than on other parts of the body.

These creatures inhabit the mountains and elevated plains of Asia, from the Caucasus northward and eastward to Kamschatka and the Ocean. They are agile and strong, but very timid, shunning the least appearance of danger; their motion is zigzag, and they stop in their course to gaze upon their pursuer, after the manner of the Domestic Sheep. They are usually found in very small flocks, and at the rutting season the males fight desperately, using their horns and forehead in the manner of the common ram. They are hunted by the people of the countries for their flesh, which is esteemed to be savoury, and for their skins, which are made into clothing. In autumn, after having pastured during the summer on the mountains and secluded valleys, they are fat, and in high request; but as winter advances, and they are forced to descend from the mountains in search of food, they lose their plumpness, and are sought after only for their skins. When taken young they are easily tamed, but the old ones never resign their natural wildness.

Allied to this species, or identical with it, is the Rocky Mountain Sheep, or Argali of America. This creature inhabits the loftiest mountain chains of North America. It is described by Spanish writers as the Sheep of California, and is familiar to the Indians and fur traders of Canada. It surpasses the Asiatic Argali in size, and is consequently taller than the largest of our domestic Sheep. Its horns are very large, approaching, but not touching, one another at the base. The horns of the female are small, and slightly curved. The fur is of a reddish-brown colour, but becomes paler in winter, and in spring the old rams are nearly white. The face and nose are white, and the tail and buttocks present the buff-coloured disc which distinguishes the male of the Asiatic species. They collect in flocks, under the guidance of a leader. They pasture on the steepest parts of the mountains, and on the approach of winter descend into the plains. They are wild and timid, betaking themselves on the least alarm to the summits of the mountains. They are pursued and killed by the Indians for their flesh and skins, and have never been subjected to domestication.

The Musmon still inhabits the Islands of Crete and Cyprus, and the mountains of Greece. It is found in Corsica and Sardinia, where it is familiar to the mountaineers of the interior. It formerly abounded in Spain, and even yet is said to be seen in the mountains of Murcia.

The Musmon is smaller than the Argali. In the male the horns are two feet in length; in the female they are often wanting. They are very thick, and they turn inward at the points, in which respect they differ from the horns of the Argali, which bend outward. The fur consists of a brownish hair, concealing a short fine grey-coloured wool, which covers all the body.

The Musmons resemble the Argalis in several characters, but they are less powerful and hardy, and inhabit a lower range

of mountains. They are gregarious, assembling in large herds during the summer months; but at the rutting season fierce contests take place between the rams, and the herd divides into smaller bands, consisting of a male and several females. The Musmon is with difficulty domesticated. Judging from the specimens which have been captured and retained in a state of confinement, they are less docile and sensible of acts of kindness than the Domestic Sheep. The Musmon has been known to breed with the Domestic Sheep, and the offspring is fruitful. PLINY mentions such alliances as common, and states that the progeny were termed Umbri.

Of the Wild Sheep of Africa our knowledge is less precise. One animal of the Ovine genus is described by M. GEOFFROY ST HILAIRE. It is about the size of a common Ram. The horns are two feet long, and eleven inches in circumference at the base, diverging outwards, so that the extremities are about nineteen inches from each other. This creature, termed by ST HILAIRE Mouflon d'Afrique, appears to resemble the Musmon of Europe.

A creature, termed Ovis tragelaphus by naturalists, but which ought rather perhaps to be classed with the genus Capra, inhabits the inland steeps of Barbary and the mountains of Egypt. It is larger than a Fallow Deer, and nearly equal to a Stag; the horns are thirteen inches in circumference at the base, approaching near to one another on the top of the head, angular, black, bending backwards and downwards, and about two feet in length. The hair on the lower part of the cheeks and under-jaw is long, forming a divided beard. The under part of the neck and shoulders is covered by coarse hair; on the upper part of the neck, and especially at the withers, the hair is long and bristly, forming a mane; the knees are covered by long dense hairs, seemingly designed to protect them; the hair on the rest of the body is short, and underneath the whole is the rudiment of a soft fine wool. It is a gentle and petulant creature, fond of ascending to high places, as the roofs of houses, capable of running swiftly, and of bounding with prodigious force.

If the hypothesis shall be admitted, that the Domestic Sheep is derived from one or more of the species enumerated, then it forms a factitious race, and its distinctive characters have been communicated to it by the effects of domestication and external agencies. A like opinion is entertained by distinguished Naturalists regarding the origin of the Dog. This creature, so vastly varied in its characters and habits, is believed to be derived from the Wolf and the Jackal, to which some add the Fox and the Hyæna. The Great Dog of the Esquimaux, and the Dog of the Prairies, might be mistaken for Wolves; the Dog of the Turcomans is entirely a Jackal; and in Africa, there are Dogs not to be distinguished from Hyænas. Under this supposition, all the minor characters of the races might be fairly ascribed to intermixture, and the effects of external agents in modifying the form and character of the animals.

There is not more difficulty in applying this hypothesis in the case of the Sheep than of the Dog. In habits and form the Argali and Musmon as nearly resemble the Sheep of Europe and Asia, as the Wolf and other wild species of Canis resemble the common breeds of Dogs; and as a creature so helpless as the Domestic Sheep could scarcely exist in the wild state, where the larger beasts of prey were found, it has been regarded as an animal whose characters have been communicated to it by domestication. It has been believed, that the Argali of Asia and the Musmon of Europe have given rise to the races of Sheep proper to Asia and Europe, and that similar species in Africa have given rise to the wonderfully diversified races of that continent; and that, although the races of Sheep may thus be derived from different sources, they may agree in those common characters assigned by Naturalists to species, just as the Wolf Dog of the Esquimaux and the Jackal Dog of the Turcomans are classed as a zoological species, although the one is manifestly connected in all its characters with the Wolf, and the other with the Jackal. Nevertheless we have no direct evidence that any of the wild species of Ovis become common Sheep; and all our conclusions regarding the origin of the latter are founded on analogy and reasonable probabilities. The Domestic Sheep, when left in a state of liberty, never tends to reassume the characters of either the Argali or the Musmon. Yet this is not a conclusive argument against the opinion which may be formed regarding the descent of the animal from the wild species of the genus. It seems to be a law of Nature with respect to animal forms, that there is a tendency to organic change, but not to retrogression. The Wild Hog, when his characters become thoroughly altered by domestication, does not, when left at liberty, again become a Wild Boar; and the Dog, though left free for ages, as in the case of the emancipated Dogs of European Colonies, does not tend to become a Wolf or a Jackal.

Whatever be the origin of the Domestic Sheep, we know that these creatures have been subjected to servitude from the earliest records of our race. The Sacred Writings record the existence of the Sheep along with the first inhabitants of the earth; and the flocks and herds of the wandering Shepherds of the East, are described with a minuteness, which enables us to compare the pursuits of the most ancient people with those of the inhabitants of the same countries at the present hour. Scarce any thing seems to have changed in the habits of men in those countries of pastoral tribes. Where ABRAHAM pitched his tent, with his "sheep and oxen," and "asses and camels,"—where he sat at the door of his tent,—where the stone was rolled from the wells from which

his maidens drew water,—there the Arab or the wandering Turcoman encamps, and all the scene is like a vivid panorama of the past. In the case of the present people of the Desert,—their tents, their journeyings, their household cares, their flocks, their camels, their wells,—all inform us with what a matchless fidelity the Sacred History has been told.

Of the Sheep, we learn that its fleece was used by the Shepherds of Syria for the purposes to which it is now applied, and that it was shorn from the skin. "Then JACOB rose up and set his sons and his wives upon camels; and he carried away all his cattle, and all his goods which he had gotten, the cattle of his getting which he had got in Padan-aram, for to go to ISAAC his father in the land of Canaan: And LABAN went to shear his sheep."* "And JUDAH was comforted, and went up unto his sheep-shearers at Zimnath."† And at a long subsequent period, when the descendants of JUDAH had become a nation, and recovered the Land of Promise, the season of sheep-shearing is referred to as one of rustic labour. Further the wool was woven into cloth, which infers an advancement beyond the ruder stages of the arts. The mere barbarian uses for raiment the skin of the Sheep or Goat, with its covering of hair, as was practised by the Scythians, by the Gauls and Britons, and at the present day by the Kalmucs and other people of Asia, and by the Hottentots and other inhabitants of Southern Africa. When cloth is made by barbarous tribes, it is simply by pressing the wool together in a moist state, so as to form felt, as we yet see done in the case of hats and beavers; by which means, the fibres adhere, and become intertwined in such a manner as to form a species of cloth; and of this simple manufacture were the woollen garments of the rude people in the north of Asia and Europe. The use of the distaff and the shuttle infers a considerable advancement in the arts. Yet at this stage, we know, by indubitable records, the wandering tribes of Syria had arrived, long ere the golden fleece had been acquired by JASON, or ere MINERVA had communicated to her Athenians the gifts of spinning and weaving.

Besides the spindle and the simple loom of the East, the Syrian Shepherds had, from early times, acquired the knowledge of the art of communicating to their cloths and garments those beautiful colours which so much please the eye. The fondness of a parent, and his gift of a many-coloured garment to a favoured child, gave rise to a tale which, in beauty and pathos, cannot be surpassed. The flesh of the sheep was likewise used, but with that temperance which still distinguishes the people of those countries in the use of animal food. It was from the milk of their flocks that they derived the chief part of their daily food. They understood the art of curdling the milk of their goats and ewes; and cheese and butter, with fat and honey, formed the simple repasts of these early shepherds, as of the Kurds, the Turcomans, and Arabs, of the present day.

Thus early was the Sheep rendered subservient to the uses of man; and it is not without reason that many look to Western Asia as the cradle of the cultivated race; whence it may be supposed to have been diffused as from a centre, and to have followed the footsteps of man as an instrument of civilization.

Sheep probably found their way into Europe by the Hellespont, with the earliest civilization of the inhabitants. At a later age the Sheep of Arcadia became the boast of Greece, and innumerable allusions in the writings of her poets, historians, and philosophers, show us in what estimation this gift of the Gods was held. It has been believed that it was at a long subsequent period that the Sheep found its way into Italy. Long after Rome was founded, the inhabitants had not yet learned to shear the fleece, and until the time of PLINY the ancient practice of plucking it from the skin was not wholly abandoned, so long had the humble Shepherds of Syria preceded in their knowledge of necessary arts the future conquerors of their country. The Sheep had been early cultivated in Spain, and may have been introduced from Africa, as well as brought from the East. The other parts of Europe were a great forest, unfavourable to the cultivation of the Sheep, and their numbers seem to have been always small. The Celtic tribes paid more regard to the Ox than to the Sheep, and the flocks of the early inhabitants of Europe never equalled in numbers those of the Syrian and other Asiatic shepherds.

The Sheep differs so little from the Goat, that naturalists can with difficulty assign to each genus its distinctive characters. In both, the fur consists of hair mixed with wool, but in the Sheep, under certain conditions, the hair tends to disappear, and the wool covers the whole body, except the face and part of the legs. In the Goat, although there is a rudiment of fleecy wool beneath the long hair, the wool never, as in the Sheep, prevails over the hair, but always remains the essential covering of the body. In the Sheep, there are horns in the male and female, although these often disappear in one or both sexes. They are angular, furrowed, spirally twisted, extending in a lateral direction: they usually curve forward, though in certain cases they bend backward, as in the Goat, so that this character does not always distinguish the Goat from the Sheep, as naturalists generally assume.

The Domestic Sheep is far inferior to the wild species in agility and strength. When left in a state of liberty, he never assumes the wildness of the Argali or the Musmon, nor acquires their boldness and speed. Yet he is not the stupid and in-

---

* Genesis, xxxi. 17, 18, 19.

† Genesis, xxxviii. 12.

HISTORY.

sensible creature which some represent him to be. When entirely subdued, indeed, his natural instincts are blunted, and he loses the providence and sense of danger which are natural to him; but when left nearly in a state of liberty, as on the mountains of Scotland and Wales, he shows that, though comparatively feeble, he is not without the power of guarding himself from danger. When attacked by Dogs or Foxes, the flock forms a circle, with the rams in front, and presents a face to the enemy. The rams rush forward on the assailant, and strike him with their powerful horns; and in their contests with one another for the possession of the females, they fight with amazing determination, stunning one another with the violence of the shocks. The Sheep is an exceedingly hardy animal with respect to temperature, his close covering of wool defending him well from cold. He foresees an impending fall of snow, and takes shelter from its violence. When buried underneath the snow, as he sometimes is, he often survives for many days, and even weeks, and may be digged up without injury, provided he has escaped suffocation; for in such a situation, his thick fleece, which, as well as the snow, is a slow conductor of heat, retains the natural warmth of the body in such a degree as to preserve life. The ewe bears that affection to her offspring which Nature has imprinted in every animal. Should mishap befall her young one, she mourns over it, and will not be comforted: should it wander from her side, her anxious bleatings are every where heard; and the little creature rewards her cares with surprising fondness. Who that has seen the shearing of the flock, has not marked the startled aspect of the lamb when the mother first runs toward it divested of her covering, and how quickly it is reassured, and how sensibly it expresses its joy, when it hears the well known voice, and receives the wonted caresses! The Sheep appears insensible and stupid, because it is rarely attached to us by acts of familiarity and kindness. But let the orphan lamb be brought up at the shepherd's cot, and fed from his hand, and we shall find it to be nearly as familiar as a dog,—fond of being caressed, and unwilling to leave its protector to join its fellows of the flock. In countries where the shepherd guides his flock, and does not herd it by dogs in the manner practised in other places, the docility which the animals acquire is wonderfully great. Where the shepherd leads they follow; they observe his motions and hear his voice, and when he uses a pipe or horn, they listen to the well known sound, and obey the signal. In the Alps of Switzerland, and in the mountainous parts of Italy, in Greece, and elsewhere, we are yet charmed with this remnant of pastoral simplicity and innocence. The shepherd boy knows all his little favourites,—he remembers their names, and, when called, they leave the flock and come to him. When the numbers are great, he selects a few, teaches them their simple lesson, and they become the guides of the rest to their allotted pastures, and learn to collect the wanderers. The music of the mountain shepherd we find to be no poetic fiction. In the mountains of the South, we yet hear the soft and artless tones of his pipe. In the morning he leads forth his little flock, and plays as he marches at their head, and at sunset returns in the like manner to the fold, where he pens them, that they may be kept from the wolves.

The fur of the Sheep consists partly of hair, but essentially of wool. In cold, moist, and elevated countries, the hair often becomes so long as to cover the wool; and when the wool falls off in the early part of summer, the covering of hair remains to protect the animal: in other cases the hairs are only partially mixed with the wool, taking, however, from the value of the fleece by rendering it less suitable for being spun, and woven into cloth. In warm countries, the wool is often scarcely developed, and nearly the whole coat is of hair, just as in the case of the Deer, the Antelope, and the Goat; yet this is not always the case, even in the warmer countries, in which the fur is sometimes fleecy, soft, and thin. Often the wool is long, and the filaments thick, without being hairy, as in the case of the Sheep of the richer plains of England: sometimes it is short, fine, and curling, as in the case of the Mountain Sheep of Spain. We can sometimes trace the influence of climate in modifying the characters of wool, but often it is affected by causes which we are unable to discover. It is also affected by domestication and artificial treatment. The difference in the character of wool renders it more or less valuable, and more or less suited to different manufactures. Thus the long thick wool of the Sheep of the plains of England, is suited to the manufacture of flannels; that of the Southdown, Ryeland, and Merino breeds, to the fabrication of cloths; that of the Blackfaced Heath Sheep of Scotland, to the making of carpets and coarser stuffs.

The colour of the wool of Sheep is yet less dependent upon any known causes than its texture, length, or fineness. Sometimes it is black, sometimes it is grey, sometimes it is brown, and in other cases it is white, or partly black and partly white. We know no law which determines these colours. There is reason to believe that the colour of the fleece in the earlier Sheep tended to the darker colours rather than to the white, as it yet does in Sheep that are left long in their natural state. But the white colour came to be more valued, as being more agreeable to the eye, but chiefly because white wool is better fitted to receive those bright and beautiful colours which we are enabled to communicate by the dyeing process. But the desire to obtain it being formed, it was easy to procure white Sheep, by using males and females for breeding which were possessed of that colour.

The Sheep of Asia and Europe are wonderfully diversified. A remarkable character which distinguishes the Sheep of several regions is the accumulation of fatty matter on particular parts of the body. Fat, we know, is a secreted tissue, which intermingles with and surrounds the muscular substance, and which envelopes the viscera within the body. A large part of it is usually found

beneath the skin, more or less thick on different parts of the body, as the rump, the flanks, and the shoulder. But in the Sheep of certain countries it accumulates greatly on the posterior parts, namely, the rump, or the tail, just as in the Ox of certain countries it accumulates on the shoulder.

In the races of Sheep which extend from Circassia and Georgia over Asia Minor, Syria, and Arabia, the tail is broad as well as long, and is covered with fat to its extremity, where it terminates in a point. The fat accumulates sometimes on this tail to such a degree as to form a large part of the weight of the animal. It is of a soft oily substance, and is used in those countries in place of butter or oil. Some of these Sheep are brought to England from time to time, under the name of Turkish Sheep. But that monstrous accumulation of fat which we see in some of them, seems to take place chiefly when they are kept in yards or houses. They then become very large, and the excess of fatty matter accumulates on the tail, where it may be supposed to be less injurious to the animal in a warm country than were it extended over the other parts of the body. In Africa the same character prevails, but in races of Sheep entirely distinct from the Syrian.

Northward of the Caucasian range the Sheep are found to be short-tailed, with the fat accumulated on the haunches, forming two great cushions. This character is the most remarkable in the races near the Black Sea and the Caspian; but it extends over a part of Asiatic Tartary and Russia in Europe, becoming less prominent, however, as we recede from these seas, and ultimately disappearing. PALLAS conjectures that this character arises from the Sheep feeding on the bitter and saline plants found in the countries on the Black Sea and the Caspian; and he asserts that, when they are removed from the places where these plants grow, the fatty excrescence becomes less. It may be justly assumed, indeed, that this character is the result of peculiarities of food, although we cannot determine physiologically in what manner the effect is produced.

A race of Sheep exists in Persia, and to the north of it, which deserves to be mentioned, as being perhaps the nearest in its characters to the wild species. There are, indeed, various races in Persia, but this peculiar race is proper to the northern parts of the country on the Caspian, and is greatly the most diffused. It is covered with a very coarse hairy wool, of a grey colour. Its horns are bent outwards in the manner of the Argali, and, what is worthy of note, its head resembles the common figure of the Ram, as depicted in Eastern sculptures. This original race is the most diffused of any in the world, extending across the Indus over a great part of Hindostan. It is to be distinguished, however, from another very remarkable one found likewise in Persia, which is destitute of tail, and has an accumulation of fat upon the posterior parts. This breed is frequently termed the Persian, but its principal habitat is the shores of the Red Sea, and it seems to be of African rather than Asiatic origin. It is by some termed the Abyssinian Sheep.

The Tartar Sheep have usually horns and pendent ears: they are strong and hardy, but they are of bad form, and have coarse wool. The finest woolled Sheep of this race are said to be produced in the Crimea; but this is partly the result of crossing with the Spanish Merinos. Many of the Tartars under the Russian dominion have vast flocks of Sheep, amounting to many thousands. The Sheep of Astrachan on the Caspian Sea are noted for the fine furs which they produce; but these furs are the skins of lambs taken from the mother before the natural birth.

Proceeding northwards through the Russian dominions in Asia and Europe, the fat rump disappears, and the Sheep have the short flat tails which distinguish a great proportion of the Sheep of Northern Asia and Europe. The wool of this race is much mixed with coarse hair. Sometimes, however, the wool covered by this hair is fine, as in the Sheep of the Zetland and Feroe Islands.

The Sheep of Europe seem to be of a more mixed descent than those of a great part of Asia. The original Celtic nations had their Sheep, though few in numbers, while their conquerors may be supposed to have brought with them the Sheep of the countries from which they emigrated, and hence the mixture of races. The Sheep of Africa, too, have been been from time to time mixed with those of the south of Europe.

In European Turkey and Greece, the Sheep do not correspond with their ancient fame. They are of small size and indifferent form. They are oftenof the flat-tailed variety, exhibiting in this respect an affinity with the Sheep of Asia Minor, and the adjacent countries. In the Islands of the Archipelago few Sheep are reared. Some of them are of the Syrian breed, having long fat tails. But there is a peculiar race existing in some of the islands, which have several horns, and long hairy wool.

Ascending the Danube, the Sheep are found to be of the long-tailed variety, although without any tendency to a fatty enlargement of the tail. The breed of Wallachia may be regarded as the type of a race which extends through Moldavia, Transylvania, and westward towards Vienna. This breed has black faces, and long wiry wool, much mixed with hair. It resembles in certain characters the Persian breed, and the Blackfaced Heath Breed of Scotland.

Italy, once so renowned for her Sheep, can now boast little of this production of her bounteous clime. The Romans, whose dress was woollen, cultivated in an especial degree the fineness of the fleece; and it was not until the days of the Empire that the

HISTORY.

silk and cotton of the East began to supersede the ancient raiment of the Roman people. The finest wools of ancient Italy were produced in Apulia and Calabria, being the eastern parts of the present kingdom of Naples. PLINY informs us that the best wool was that of Apulia on the Adriatic Sea; that the next best was further to the south, on the Gulf of Tarentum; that the Milesian or Asiatic Sheep carried the third prize; and that, for whiteness, there was none better than that produced on the Po. The care of the Romans in causing the wool to grow fine, exceeded, in the case of certain breeds, any thing that is now attempted. The sheep were kept in houses, and continually clothed, so that the filaments of the wool might become delicate; the skin was smeared with fine oil and moistened with wine: the fleece was combed, so that the wool might not become matted, and the whole was washed several times in the year. Under this artificial treatment the breed became tender, subject to diseases, voracious of food, and the females so incapable of nourishing their young, that a large part of the lambs was obliged to be destroyed. The Apulian and Tarentine breeds probably ceased to exist even before the fall of the Empire, or were swept away by barbarous conquerors, with all the arts of the lovely land. There are still in Italy many fine-woolled Sheep, but of small bad form, and ruined by neglect. The same remark applies to the Sheep of Sicily, which were greatly celebrated for the fineness of their wool, and which have not yet lost this ancient character.

Of all the countries of Europe, Spain has been the longest distinguished for the excellence of its wool. This fine country, more varied in its surface and natural productions than any other region of the like extent in Europe, produces a great variety of breeds of Sheep, from the larger animals of the richer plains, to the smaller races of the higher mountains and arid country. Besides the difference produced in the Sheep of Spain by varieties of climate and natural productions, the diversity of character in the animals may be supposed to have been increased by the different races introduced into it, 1*st*, from Asia, by the early Phœnician colonies; 2*d*, from Africa, by the Carthaginians, during their brief possession; 3*d*, from Italy, by the Romans, during their dominion of 600 years; and 4*th*, again from Africa, by the Moors, who maintained a footing in the country for nearly eight centuries. The larger sheep of the plains have long wool, often coloured brown or black. The Sheep of the mountains, downs, and arid plains, have short wool, of different degrees of fineness, and different colours. The most important of these latter breeds is the Merino, now the most esteemed and widely diffused of all the fine-woolled breeds of Europe. This race we shall have occasion to consider in the sequel, as having been partially naturalized in this country.

Of the Sheep which have been established in the other parts of the continent of Europe, the varieties are exceedingly great. Their full history would be of much interest, not only as illustrating the natural history of the Sheep, but as throwing light on the early migrations and settlements of some of the ancient inhabitants of Europe. This extensive subject, however, could not be here entered upon. It must suffice to observe, that the greater part of the Sheep found in the west of Europe are of the long-tailed varieties, but that the short-tailed kinds have been cultivated by the Sclavonic nations, and have found their way to Scandinavia, and thence into the most northerly of the British Islands. The Sheep of the Celtic tribes seem to have been small in size, and covered with a soft wool, agreeing with examples existing in Wales, and, until a recent period, in the Highlands of Scotland. In Iceland and the extreme north of Europe are to be found polycerate Sheep covered with a shaggy fur.

In the British Islands the races of Sheep present extraordinary diversities of size, form, and other characters, caused, it may be believed, in part, by a difference of descent, in part by the long-continued influence of climate, food, and other agencies, and in part by the effects of breeding and artificial treatment. The first of the British breeds to be mentioned is of the Short-tailed variety, which is limited to the countries whose inhabitants are of Scandinavian and not of Celtic origin.

Drawn by Mr Nicholson R S A from a Painting by Mr Shiels R S A

Drawn on Stone and Printed by Fairland

BREED OF THE ZETLAND AND ORKNEY ISLANDS.

Ram, 3 Years old of the Ancient Breed, from the Isle of Enhallow. - Ewe, 3 Years old, from the Island of Rousay;
bred by William Traill, Esqr of Woodwick: - The Lamb a cross with the pure Cheviot

Published April, 1840, by Longman, Orme, Brown, Green & Longmans, Paternoster Row, London

BREEDS OF THE ZETLAND AND ORKNEY ISLANDS.

PLATE I.

1. RAM, Three Years Old, of the Ancient Breed, from the Isle of Enhallow.

2. EWE, Three Years Old, from the Island of Rousay; bred by WILLIAM TRAILL, Esq. of Woodwick: the Lamb a cross with the Pure Cheviot.

The Sheep of this race inhabit the group of Islands and Islets which lie to the north of the Pentland Firth, extending to about the sixty-first degree of north latitude. They have been in numerous cases intermixed with Dutch Sheep brought by the fishing craft which frequent these northern seas, and likewise with the Sheep of the Main. They thus differ in some degree in the different islands, and even in different flocks of the same island; but they have manifestly a common origin with the Sheep of Norway and other parts of Northern Europe.

These wild little Sheep are possessed of a fur consisting partly of hair and partly of fine wool. They are of different colours, black, brown, or white; and more often they are of a grey colour, from the mixture of black and white, and are often curiously streaked. There are horns in both sexes, but more generally they are wanting in the females, and sometimes in the males. The horns are short, and often so straight and upright, as to resemble those of the goat. The tails are short and broad, their limbs slender, their aspect wild, and their motions active.

These Sheep have acquired the characters which fit them for the condition in which they are placed. The country which they inhabit possesses a climate eminently cold and humid, and is exposed to continued gusts and storms. Scarce a tree is to be found, or a shrubby plant, beyond the heath which covers the soil. Many of the islets are little else than rocks, with a covering of peat, washed by the spray of the boisterous seas which surround them, and occupied only by a few Sheep left to find their own food. Under these circumstances, the Sheep are small in size, but hardy, and capable of subsisting under great privations of food. The Wethers may be fattened, on a medium, to 6 or 7 lb. the quarter. At certain seasons they find their way from the mountains to the shores, and feed on the fuci and other marine plants. It is remarkable to see them on the receding of the tide, running down from the hills, as if possessing an instinctive knowledge of the time of ebb. They remain feeding while the sea allows; and sometimes they are caught by the surrounding tide and drowned. Sometimes they are unable from exhaustion to ascend again the cliffs of the coast, and so perish; sometimes they are driven into coves, where they are imprisoned until the retiring tide permits them to escape. It is remarkable that these Sheep feed readily on animal substances. One of the great resources in some of the islands for keeping them when no other provender exists, is fish, which are dried on the rocky shores for that purpose. These Sheep manifest in their habits the rudeness of their condition. The rams will often set upon the other Sheep of the flock if wounded, and destroy them. They will furiously attack the females and new-born lambs, as if, in the dreary circumscribed islets which they inhabit, they had acquired the instinct of endeavouring to prevent the too great multiplication of their numbers. The ewes, conscious of the danger, make their escape at the time of lambing, that they may bring forth their young in secret. When brought to the richer countries, these wild creatures make every effort to escape from the enclosures which confine them, find their way to the nearest elevated grounds, and wander from place to place. They crop the tops of herbs in the manner of goats, and endeavour to reach the branches of shrubs and trees. Their descendants, for more than one generation, retain the wild habits of the race.

Of these Sheep, the least mixed with foreign blood are those of the remoter Islands, chiefly of Zetland. The Sheep of Orkney are of a more mixed descent, and the impure breeds have not the fineness of wool which distinguishes the ancient race. In these animals, the hair grows mixed with the wool all over the body. The wool falls off at the commencement of the warmer season, leaving the hair to protect the animal. Previous to the winter months, the wool has again grown, and, along with the hair, forms a thick fur, suited to afford a covering during the intense rigour of the colder season. The usual practice is to pluck off the wool, and not to shear it. This practice has been described as rude and cruel. It is, however, the method of treatment which is the best adapted for obtaining the wool unmixed with the hairs, which would render it unsuited for being spun and woven. The wool may, in this manner, be taken from the skin without violence, and would fall off naturally, and be left amongst the heaths and in the bogs. The wool is scarcely ever washed before being pulled, and the quantity is very small, not exceeding from $1\frac{1}{2}$ to 2 lb. in the unwashed state. It is remarkable for its softness and the tenuity of its filaments. It is admirably suited for being made into

hose and fine flannels, but is deficient in the property of felting, and is therefore ill adapted for the making of cloths. The black coloured wool is the most valued for the making of hoes and caps, because it does not require the addition of dyes. The hides with the wool form beautiful pelisses, and would be valuable on this account, were such dresses in demand in this country.

The Sheep over a great part of these islands are pastured in common, and the general treatment of them is rude in a remarkable degree. The animals are often left entirely to their own resources in the bleak and desolate islands in which they are imprisoned. They are collected by being hunted together once a-year, stripped of their fleeces, marked by their respective owners, and then turned adrift until such as survive are caught again in the following year, and subjected to the same treatment. In all cases the number of Rams is allowed to be disproportioned to that of the Ewes; and in many cases the numbers of the sexes are nearly equal. When Sheep are wanted from the pastures, they are run down by dogs; and hence these poor creatures acquire as great a terror for the dog as in other countries they do for the wolf or other beast of prey. The dogs, termed *Had* or Sheep Dogs, are taught to select a particular Sheep, and run him down; and curious old laws existed regarding the property and control of these animals. Under the whole of this barbarous system, the mortality is excessive; all the profit to be derived from a proper management of a flock of Sheep is lost; and all the means are foregone of improving the breed, by the selection of the male and female parents.

It is painful to draw such a picture of neglect, as applicable to the rural economy of any part of a country like Britain. Yet it is consoling to know that the seeds of improvement are scattered in these long-neglected Islands. In several of them are settled various landed gentlemen, who are equal in intelligence to any in the Kingdom, and who have begun to give the due attention to the resources of their country. The efforts of such individuals to improve the domestic animals of their estates cannot fail to meet with success, nor the benefits of their example to be gradually diffused. The power of steam has further been called into operation to bring those remote Islands into contact with the markets of the South; and now the breeders, instead of suffering their Sheep to become the prey of eagles, ravens, and gulls, and to perish through hunger and neglect, have the means of carrying their rich and delicate mutton direct to the best markets of consumption in the Kingdom.

A question of much economical interest for these Islands is, whether the existing breeds should be preserved, or new ones substituted. The interests of individuals may be expected to lead them to the latter course, at least to the extent of crossing the native races with superior stock. In this manner an immediate profit may be expected; and it is not to be supposed that individual breeders will abandon a mean of present profit for one more distant and contingent. Under this system, indeed, the pure Scandinavian Breed will diminish in numbers, and ultimately disappear; but this could scarcely be regretted, if a more useful class of animals were to be substituted. If it were wished to preserve the ancient race in such of the Islands as yet produce them, then the attention of breeders must be directed to the proper management of their flocks, to better feeding, and to long and persevering care in the selection of the males and females. Without attention to these things, the present race of Zetland Sheep can never be recovered from the degeneracy into which it has fallen during ages of maltreatment and neglect.

The Merino Sheep have been tried for the purpose of crossing the native Sheep; but, as might have been anticipated from the habitudes of the Merino parents, the progeny was found unfitted to withstand the rigour of the climate and the exposed situation of the country. The Cheviot Sheep have, however, been used for crossing with advantage, and appear to be the race which is greatly the best suited for the purpose.

The Short-tailed Sheep of Northern Europe had also been early carried to the Hebrides, doubtless by the Norwegians. Some of the descendants of these Sheep remain, but only in scattered remnants, which are rapidly disappearing, their size being diminutive, and the interest of the breeders having every where led them to adopt breeds of more economical value.

Polycerate Sheep are sometimes found in the Islands of Scotland, doubtless the descendants of the same race in Iceland and the north of Europe. They are generally worthless, and are nearly extinct.

HISTORY.

The Ass of Africa, it has been said, seems to differ in certain characters from the Ass of the saline deserts of Asia. It is not perfectly known whether he yet exists in the wild state in this continent; but he has been found in a state of subjugation as far as travellers have yet penetrated to the north of the line. At length, however, he gives place to another creature of the same tribe, but more graceful in form, more beautiful in colour, not inferior to the Wild Ass in swiftness, and still less subject to the influence of man.

The ZEBRA, the Wild Paard of the colonists of the Cape, inhabits the mountains of Southern Africa, extending into the interior to an unknown distance. He resembles the Ass in general form, but he is more compact, graceful, and symmetrical. He is about four feet in height at the shoulder; his limbs are delicate, and his head and hoofs finely formed. The ground colour of his fur is white, but the whole of his body, head, and limbs, is covered with bright black or brownish-black bands, placed wider or closer together; those on the upper part of the body connected with the dorsal line; those on the face terminating in the bay-coloured nose. His ears are long and moveable, and adorned with two black bands; his tail is dark, and tufted at the extremity; his mane is erect and bushy, and adorned with alternate bands of black and white. This wild and beautiful creature inhabits the mountains, but descends from time to time into the plains, cheering the desert with his graceful motions. Like all the Equine tribe, he is gregarious, and migrates from place to place in troops. He differs in this from the Ass, that he does not tamely resign his freedom. Like other wild animals, indeed, he may be reduced to a certain degree of subjection; but he never resigns his natural indocility, nor shows that resignation to the power of man which constitutes domestication. We must believe, then, that this gay and beautiful Ass is not destined to administer to the uses and enjoyments of society, by submitting himself to human control. He breeds with the mare, and the hybrid progeny resembles the Mule.

The QUAGGA is taller than the Zebra, his height at the withers being about four feet and a half. His body is more round than that of the Zebra; his limbs are robust; and his arching neck is surrounded by a long upright mane streaked with alternate bands of brown and white. His ears, of moderate length, are marked with two irregular bands, and he possesses a tail like that of the Horse, and covered with long and flowing hairs. The colour of the head, the neck, and the upper part of the body, is a reddish-brown, marked with dark brown bands. The streaks become fainter until they are lost in the shoulder; a broad dark line extends along the back; the brown colour of the back becomes gradually more pale towards the lower extremities; the belly, legs, and tail are white.

This elegant little Horse inhabits the plains of Southern Africa, within the same geographical limits as the Zebra, and extends to an unknown distance into the interior. He is found within the territories of the Cape, but the use of fire-arms has thinned his numbers, and driven him beyond the limits of the settlers. He is found in the interior in countless herds, spreading over all the plains where water and herbage can be found. He is hunted for his flesh by all the African tribes.

The Quagga is of a greatly more gentle and pliant temper than the Zebra, and he has sometimes been tamed for the purposes of draught by the Dutch inhabitants of the Cape. SPARRMAN saw one driven through the streets of Cape-Town, in a team with five horses. Another, which had been taken young, was so tame that it came to be caressed when approached. Many years ago, Mr GRIFFITH informs us, a pair used to be seen at Hyde Park, in the gay season, attached to a curricle, and as subservient to the rein as well-trained horses. Thus this beautiful and agile creature is capable of domestication, and might doubtless be applied to all the purposes for which the Horse is used, in the wild and arid regions which he inhabits. Were not Africa peopled by human beings seemingly in the infancy of intellect, we might wonder that this the native horse of Southern Africa had not long ere now been subjected to domestication. It is more surprising that the European inhabitants of the Cape Colony should have omitted to subdue an animal so easy to be obtained. These lethargic Colonists, however, have manifested equal indifference to the other means by which their intercourse with one another might be facilitated. They have not introduced the Camel, so well adapted to the long journeyings of a sandy country; nor the Mule, which would doubtless surpass the Ox for the transporting of merchandise.

The STRIPED QUAGGA, the Bonti Quagga of the Cape colonists, was long mistaken for the Zebra, until he was distinguished from it by BURCHELL, from whom it has been termed Equus Burchellii. He is about the height of the Common Quagga, but less robust in his proportions. He has the ears and tail of the Horse; and his arching neck is surmounted by an upright mane, about five inches in length, streaked with alternate bands of black and white. The muzzle is black; the general colour of the head, neck, and body is a sienna-brown, variously streaked with black and deep brown bands; the belly, legs, and tail are of a pure white.

This creature is found within the territories of the Cape, but chiefly beyond the Garrep river, where it is seen in immense herds, stretching over boundless plains. Its habits and temperament seem to resemble those of the Common Quagga.

The Quaggas and Zebras that people the wild regions of Southern Africa confound the imagination by their numbers.

HISTORY.

an instant. The following singular story is related by Mr ROLLE, a gentleman of Devonshire:—A certain person of rank conceived the cruel idea of tiring out a favourite hunter. After a long chase in the forenoon he dined, mounted the horse again, took him to the hills, and galloped him furiously, until the faithful creature had nearly sunk down from exhaustion. On his being brought to the stable the groom shed tears at seeing the condition of his poor favourite. The rider himself, some time afterwards, came into the stable, but the insulted horse, languishing and overcome as he was, sprung upon the wretch, and, but for the attendants, would have put him to death. Even harsh language used to a horse in the stall will cause his pulse to rise many beats in the minute.

The Horse is susceptible of the feelings of pride and rivalry. In triumphal processions and displays of parade, he manifests distinctly the pleasure which he feels in his gay and glittering caparisons. In the race course, the spectators are able to observe the ardour of the rival horses, the impatience with which they wait the moment of starting, the spirit with which they press onward in the contest of speed. It is manifestly less the terrors of the whip and spur, than the passions which the contest itself engenders, that call forth the exertion of the animals' powers. When the struggle reaches the crisis, life or death seems to depend on victory. A fine horse called Forester, known on the turf as having been the victor in many well-contested races, found himself on one occasion closely matched by a younger rival. The latter began to gain ground, the horses at length ran side by side, neck by neck, when Forester, finding his strength failing, and his rival about to pass him, made a desperate spring, seized his competitor by the jaw to hold him back, and could scarce be forced to quit his grasp. In those ruder kinds of races, in which horses without riders are matched against one another, the rivalship is more apparent to the spectators, though not perhaps more keenly felt by the combatants. Ancient writers give us examples, from the games of the Hippodrome, in which horses, deprived by accident of their riders, pursued the course, and came in the conquerors. The Horse shares even the feelings of his master, and enters with joy into his pursuits. Who that has seen the hunter in the fields has not marked the fire which lights up his eye, the eagerness with which he pricks up his ears, and listens to the voice of the pack, the courage with which he surmounts the obstacles opposed to him, and the ardour with which he pursues the sport! Nay, not only in the pastimes which suit his spirit and love of active motion, but in the sterner pursuits of his master, is this gentle and generous creature formed to take a part. Nothing seems more foreign to the very nature of such a creature than martial strife and the shedding of human blood; yet when, alas, has been the age in which the Horse has not been made the instrument of cruelty and bloodshed, and not even, it would appear, the unwilling instrument, for his gentle nature seems to adapt itself to the purpose to which he is rendered subservient, and he becomes fierce and cruel because his master wills it so! He shares the fatigues of war, delights in the noise of arms, and braves the shock of combat and the danger of wounds. "Hast thou given the Horse spirit? hast thou clothed his neck with terror? Canst thou make him bound like the locust? The glory of his nostrils is terrible: He paweth in the valley, and rejoiceth in his strength: He goeth on to meet the armed men: He mocketh at fear and trembleth not; neither turneth he back from the sword. The quiver rattleth against him, the glittering spear and the shield. He swalloweth the ground with fierceness and rage. He believeth not at first that it is the sound of the trumpet which he heareth; but at the full blast of the trumpet he crieth ha! ha! and smelleth the battle afar off, the thunder of the captains and the shouting."

The Horse is found over nearly all the Old Continent, from the 65th degree of northern latitude to the Islands of Asia on the south. He did not exist in New Holland, nor in the Islands of the South Sea, nor in America, until carried to these countries by European voyagers. He is yet found in a state of liberty in the vast wilds of Tartary, extending through the south of Siberia, and to the deserts to the north-west of China. As he is presented to us in a state of nature in these countries, he is inferior in beauty and nobleness of form to the domesticated races. His head is large, thick, and very convex above the eyes. His ears are long, habitually carried low, and hanging backwards. The limbs are long, but stout; the muzzle thick, and garnished with bristles; and long hairs grow beneath the jaws, and under part of the neck. The mane is thick and bushy. The hair of the body is long and shaggy, and sometimes frizzled. It is usually brownish-dun, approaching to a muddy cream-colour, but never black. These horses are gregarious: they are often observed in large numbers together; but for the most part they are in little bands, under the guidance of a stallion. Their senses of smell and sight are acute. They are vigilant in a high degree, stationing sentinels to guard the troop from surprise. They shun the presence of man; and, when alarmed, set off at speed, and are quickly lost in the distance. They are hunted by the people of the desert for their flesh and skins, and sometimes they are captured alive, chiefly in winter, when the snows arrest their progress, and allow them to be driven into hollows and ravines. In the neighbourhood of the Palus Mæotis, or Sea of Asoph, are wild horses, which PALLAS supposes to be the descendants of Russian horses employed at the siege of Asoph in 1697, and turned adrift for want of forage. Older writers and travellers speak of wild horses in the deserts of Africa; but no modern traveller has verified the statements.

The Horse is seen to be affected in his character and form by the agencies of food and climate, and, it may be, by other

Drawn by Mr Nicholson R.S.A from a Painting by Mr Shiels, R.S.A

Drawn on Stone & Printed by Fairland

BREED OF THE HIGHER WELSH MOUNTAINS.

Ewe, from the high range of Glamorgan, north of Neath.—Ram, of the same race, in a state of improvement, bred by The Right Hon. Viscount Adare, M.P., Dunraven Castle, Glamorganshire. Ewe, of the same descent, improved, bred by Viscount Adare.

Published April, 1840, by Longman, Orme, Brown, Green & Longmans, Paternoster Row, London

BREED OF THE HIGHER WELSH MOUNTAINS.

PLATE II.

1. EWE, from the high range of Glamorgan, north of Neath.
2. RAM, of the same race in a state of improvement, bred by the Right Hon. LORD ADARE, Dunraven Castle, Glamorganshire.
3. EWE, of the same descent, improved, bred by LORD ADARE.

The Sheep of Wales, inhabiting a country partly of mountains and partly of valleys and plains, may be expected to present great diversities of character. Accordingly, we find a variety of breeds, from the wilder races of the higher mountains to the larger Sheep of the lower country. The latter classes of Sheep, however, are not truly Welsh. They are the Leicester, Cotswold, and other Sheep of the English plains, either pure or mixed with the races of the mountains. It is the Mountain Sheep alone that we are to regard as the genuine Sheep of Wales, the descendants, it may be believed, of the ancient Sheep of South Britain.

Of the Mountain Sheep of Wales there are numerous minor varieties, but generally they may be divided into two distinct groups, which may be regarded as the types to which all the others have more or less affinity. A great part of the mountains of Wales, it is to be observed, is absolute common, in which animals of every kind may be mingled together; and however distinct the original races may have been, it is not to be supposed that they can have remained without intermixture during the many ages in which Wales has existed nearly in its present state. Notwithstanding, however, of this amalgamation, there may be traced the characters of two very distinct groups; the first, the wilder Sheep of the higher mountains; the second, a race generally inhabiting a lower range of pasturage, and possessed of very particular characters. The first may be termed the Sheep of the higher mountains, as indicating their habitat; the second, the Soft-woolled Sheep of Wales, as denoting the character of the fleece.

The Sheep of the higher mountains are of small size, scarcely capable of feeding to above 5 lb. the quarter, and have horns both in the male and female, slightly curved and stretching backwards in the manner of the goat; their tail is of ordinary length; they have a ridge of coarse hair passing along the spine to the tail, surrounding the neck and reaching to the dewlap; the wool on the sides is of medium fineness, on the haunches it is coarse and wiry. The colour of the fleece is black, grey, or brown.

This remarkable race has the wool and aspect of the Sheep, but its habits rather resemble those of the Goat. It seeks the summits of mountains; it vaults, rather than runs, and feeds on the dry aromatic plants of mountains in preference to the herbage of the lower valleys. Like all the native Sheep of elevated regions, the fleece of these wild little Sheep is a mixture of hair and wool, so that their bodies may be better protected from the inclemency of the weather. They are almost as difficult to be approached in their native haunts as the deer or the antelope. Some say that they station sentinels on the higher ground, who give notice to the scattered flock of the approach of danger by a kind of shrill bleat resembling a falsetto tone. As in the case of the Antelope, no sooner is one alarmed, than all the others bound off together, gazing behind them as they run in the manner of the Musmon and Argali. The rams attack the ewes at the period of bringing forth their young,—a singular instinct existing, it has been seen, in the wild races of the Zetland and Orkney Islands, and given, it may be believed, to prevent the multiplication of their numbers beyond the means of subsistence.

It may appear remarkable that this race should preserve itself distinct from the others with which the commons and mountains of the country are stocked. It is to be observed, however, that this is in accordance with the habits of all Sheep possessing a peculiar character and temperament. Thus, the naturalized Merino Sheep never amalgamate thoroughly with the races with which they are mingled in the same pastures; they collect in separate flocks upon the higher grounds, and crowd together when alarmed; in like manner, if any of the breeds of Forest Sheep are mingled with those of the lower country, they congregate together, and pursue their own range of pasturage. Now, from whatever causes the wild Sheep of Wales assumed their existing character, they have acquired the habits proper to their situation. They keep by choice to their natural habitat, and herd together; and hence it is that the original characters of the race have not merged in those of other varieties.

This race of Sheep, though with some change of character, is found all over the most elevated parts of Wales, from the inland mountains of Glamorganshire to those of Merioneth and Caernarvon. They are numerous in Caernarvon, and when seen by the traveller have more the aspect of dogs and foxes than of Sheep.

BREED OF THE HIGHER WELSH MOUNTAINS.

As this race becomes naturalized in a lower range of mountains, or in any way is placed under more favourable circumstances with respect to the supplies of food, it becomes enlarged in size, and loses part of its natural rudeness. Accordingly gradations are observed in the character of the race, from the more elevated and barren mountains, to those which are of a lesser altitude, or more productive of herbage. The Sheep of Radnor and some other parts are of the same descent, but are so changed by the more favourable circumstances under which they are reared, that they are looked upon as distinct breeds. They have manifestly, however, a common origin with the wilder Sheep of the higher mountains. The examples in the Plate will show the progressive steps by which the wilder race may assume a new set of characters, in consequence of better food and attention to the parents in breeding: and the example of the old Radnor in the following Plate will show the formation of a breed from the gradual operation of the same causes. All the varieties of the Welsh Sheep which have an affinity with the race of the higher mountains have horns, and have more or less of black hair on the face and legs.

This wildest of the races of Sheep in Wales is susceptible of improvement; but to accomplish this to the required degree, a long course of selection, combined with a proper practice with respect to feeding, is required. But this wilder breed presents no characters which can render it expedient to expend time and capital in cultivating it in preference to others already formed. The basis is bad, and the interests of breeders will be served, either by substituting at once a superior breed, or by crossing the native race until one with better properties has been produced. Two races of improved Sheep exist in this country, which might either supplant the existing races of the Welsh mountains, or be employed for crossing until a new class of properties were produced. These are the Southdown and the Cheviot breeds. The Southdown is rather suited to a dry than a moist climate, and its natural habitat is not similar to the humid soils of Wales. It is conceived, therefore, that the Cheviot breed, though inferior as a breed to the Southdown, presents a combination of properties which may adapt it better to this part of the country. It is, in all useful properties, vastly superior to the indigenous race, and has already been acclimated in countries more elevated and inhospitable than the highest ranges of the mountains of Wales.

Drawn by Mr Nicholson, R.S.A from a Painting by Mr Shiels, R.S.A

Drawn on Stone and Printed by Fairland

SOFT-WOOLLED SHEEP OF WALES.

Ewe, of the soft-woolled breed, from the slaty mountains of South Wales.—Old Radnor Ewe and Lamb.

Published April, 1840, by Longman, Orme, Brown, Green, & Longmans, Paternoster Row, London.

SOFT-WOOLLED SHEEP OF WALES.

PLATE III.

1. EWE of the Soft-Woolled Breed, from the Slaty Mountains of South Wales.
2. Old Radnor EWE and LAMB.

The most characteristic race of Sheep in Wales is that which has been termed the Soft-woolled breed. It may receive this name on account of the quality of its wool, which, though mixed with hairs, is much less so than that of the wilder breeds referred to, and has a softness and tenuity of filament which peculiarly fit it for the making of flannels, one of the staple native manufactures of the Principality. It may, however, be more appropriately termed the White-nosed Breed, from a character which distinguishes it from every other in Wales.

This race of Sheep is spread over the whole of Wales, and is truly the distinctive breed of the country. The animals are of small size, usually weighing from 4 lb. to 6 lb. the quarter, when grown and fat. They are of the long-tailed variety of Sheep, thus agreeing with the Sheep of the Celtic nations of Europe, and differing from those of the Scandinavians. The males have horns, which are thin, slightly curved, and bent backwards; the females are generally destitute of horns, and sometimes the males. Their noses are white, or pink-coloured. They have lengthened hair beneath the throat like a beard. Their figure is very slender, and their posterior limbs long, as if to fit them for vaulting as well as running. Their neck is thin, and thrown back in the manner of the Antelope or Deer. The fur of the face and body is white, but sometimes, as in almost all breeds of Sheep, individuals wholly brown or black present themselves.

These Sheep have all the wild characters of a mountain breed. They are of wandering habits, and range from pasture to pasture; they prefer the plants of mountains to the more succulent and nutritive herbage of plains; they delight to browse on the leaves of the ivy and on the shoots of bitter shrubs, and they rise upon their hinder legs to reach them after the manner of the Goat. They are fond of taking their station on elevated points, and making their way amongst crags and cliffs. They are wary and timid, and, like the wilder Sheep of the mountain summits, give notice of approaching danger by a signal. They steal down from the hills at night, and make inroads into the fields of wheat and other green plants. They are with difficulty confined by artificial barriers, leaping over walls, and making their way through the interstices of hedges; nay, sometimes they have been known, when driven to a distance, to escape from the vigilance of their keepers and regain their native mountains. They are driven to London and other markets of consumption, being generally kept by the way to be fattened in the richer pastures. Their mutton, like that of all the Sheep of Wales, is excellent, and, when fat, brings a high price. Many carcasses are sold in London under the name of Welsh mutton, when in truth they are the produce of crosses of different kinds.

The wool weighs from 1 lb. to 2 lb. the fleece; it is never free from hairs or kemps; it possesses the character of long wool, and is, therefore, suited for the making of flannels, hose, and similar loose fabrics, rather than cloths; nevertheless all the home stuffs for country use were formerly made of this and the other kinds of native wool. The Welsh long preserved the simplicity of ancient manners, and manufactured their woollen stuffs at home. The cheapness of mechanical labour is rapidly putting an end to this domestic manufacture; to the increase, doubtless, of the resources of the country, though not perhaps to the advancement of rural industry and happiness. A singular character exists in the case of this race of sheep. The wool of the neck tends to fall off before that of the body, and hence it is a frequent practice to clip the wool of the neck and face before winter.

The Sheep of Anglesea are allied to this race, but, being reared in a lower country, they are larger than the common Sheep of the mountains. Crosses have been made from time to time with the Sheep of Anglesea, but the affinity of the native race with the Soft-woolled Sheep of the mountains is easy to be traced in the height behind, the low and narrow forequarters, and the character of the wool. The attempts to improve the old breed of Anglesea by crossing have not been successful, owing, it may be believed, to the want of perseverance and system; and graziers and butchers prefer the native to the mixed races.

The Old Radnor Sheep, shown in the Plate, have some characters in common with the White-nosed Breed, but they are more distinctly connected with the Sheep of the higher mountains. They are of larger size and better form than the White-nosed Breed, fattening to from 7 lb. to 9 lb. the quarter. Their wool is of the long or combing character, but, like that of all the Sheep of Wales, is soft, and suited to the making of flannels. It is to be observed that the modern Sheep of the district, known commonly as the Radnor Breed, differ considerably from the true Radnors, having been crossed with the Shropshire and other breeds of the low country.

SOFT-WOOLLED SHEEP OF WALES.

A staple production of Wales being its Sheep, a question of much interest is the manner in which the different breeds may be improved. The people of Wales, with the attachment to old habits which distinguishes them, are averse to changes, and in the case of their Sheep there are obstacles to improvement, independent of the habits of the people. A great part of the whole mountain pastures is common. Under such a system it is difficult to introduce a beneficial management of Sheep. At present the treatment of the animals is defective in a high degree. No care is used in the selection of the breeding parents, and no provision is made for the proper feeding of the animals in winter; they are left in a state of nature, and scarcely looked to but when they are to be caught for divesting them of the fleece. It is not uncommon to shear the lambs in the first year, a practice highly detrimental in a moist and elevated country; but the still worse practice exists of weaning the lambs at an early season, in order to milk the ewes. The lambs born in March are frequently weaned in May, and the ewes are milked night and morning until the middle of September. This miserable system is calculated to destroy the vigour of the Sheep and take away the means to produce and rear a healthy offspring; and until it is abandoned we may be assured that the Sheep of the Welsh mountains will continue puny and degenerate. The substitution of another breed would not remedy the evil, if this destructive management were continued, and therefore the primary improvement of the Sheep of Wales must be a change of the system of management.

It were certainly to be desired, that the ancient breeds of these mountains could be preserved, as being naturalized to the country, and producing a kind of wool, which is suited to a useful class of manufactures; yet, undoubtedly, individual breeders will find it more for their interest to adopt a breed already improved, than to incur the long delay and expense of improving the existing ones. Crossing will probably be resorted to more frequently than an entire substitution of a new breed; and it is important, that the breeders proceed with judgment in the system of crossing which they adopt. They should select the breed which experience shows to be the best calculated to amalgamate with the existing race. The most suitable for this purpose seems, as has been already said, to be the Cheviot, as being the inhabitants of an elevated country, and producing a kind of wool, which, though different from the Welsh, yet brings a good price in the market. The Southdowns, with all their valuable properties, seem scarcely so well suited to these humid mountains, as the more robust Cheviots; and it is remarkable, that the Southdown Breed is less in favour with breeders in the moist climate of the western parts of this country, than towards the eastern coasts, where the drier climate is nearer to that of the Chalky Downs, which may be regarded as the native country of the race. Some attempts have been made to cross the Welsh Sheep with the Black-faced Heath Breed of Scotland. But a race superior to the Black-faced Heath Sheep could exist in the mountains of Wales, and the effect of such an intermixture would be to destroy that fineness of fleece which is proper to the existing breeds.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone and Printed by Fairland

BREED OF THE WICKLOW MOUNTAINS.

Ewe, 3 Years old, from the higher range of heathy mountains. Ram, 3 Years old, from the Vale of Glenmalure

Published April, 1840, by Longman, Orme, Brown, Green, & Longmans, Paternoster Row, London.

BREED OF THE WICKLOW MOUNTAINS.

PLATE IV.

1. RAM, Three Years Old, from the Vale of Glenmalure.
2. EWE, Three Years Old, from the higher range of heathy mountains.

Ireland, from the fertility of the soil and the mildness and humidity of the climate, is in an eminent degree adapted to the production of the grasses, and consequently to the rearing of Sheep. It is known that from early times Sheep were amongst the domestic animals of the country, affording by their skins and fleeces covering to the inhabitants. After the country fell under the dominion of England, the estimation and importance of the native production is chiefly made known to us by cruel laws, prohibiting the exportation of the wool of the country; which, notwithstanding, found its way in great quantity from the west of Ireland to Flanders and other countries where a demand for it existed. There were then no large manufactories in the country itself, but the inhabitants, like the Welsh, prepared their wool at home. This system, the happiest that could be for the industry and virtue of the people, remained even when the rural population was undergoing an unhappy change; and a great deal of coarse stuff is still made in this way by the poor peasantry. There are now also large manufactories of wool in Ireland, and, after supplying these, there is an extensive exportation of the raw material and of worsted yarn to this country.

The Sheep of Ireland consist partly of mountain breeds, and partly of a large long-woolled race which exists, with very uniform characters, over the greater part of the country. This latter race, which resembled the coarser extinct breeds of the midland and western counties of England, is not now to be found in its unmixed state. It has undergone an entire change by the effects of crossing, and is every where greatly improved.

Of the Mountain Sheep of Ireland there are several breeds, with characters more or less distinctly marked. Those of Kerry and the west of Ireland, are the most extended and remarkable: that of the Wicklow Mountains has a more limited range, but is the most valuable.

This breed inhabits the Wicklow Mountains in the county of that name. These mountains are of considerable elevation, exposed to high winds, and possessing a humid climate. Remnants only of the pure breed remain, chiefly in the vale of Glenmalure, the original race having very generally been crossed by the Southdown and other breeds.

The Sheep of the Wicklow Mountains have an evident affinity with the Sheep of Wales. They are of small size but of tolerably good form, and the mutton is excellent. They are very wild, and at night steal down to the lower grounds to pilfer the growing corn. They are destitute of horns in both sexes. Their faces and legs are white, but there is a constant tendency to the production of black Lambs, and there cannot be a doubt that the breed, if left to itself, would become wholly of that colour. A local law exists that all black Lambs shall be destroyed. The wool is soft and fine, and somewhat long in the staple; but it is always more or less mixed with hairs. The quality of the wool, however, as well as the general character of the Sheep, varies with the elevation. In the lower rocky hills, as those which do not exceed 800 feet above the level of the sea, the wool is more fine and less mixed with hairs. At a higher elevation, where heath and wet bogs begin, the Sheep become smaller and wilder. In these, a ridge of bristly hairs extends like a mane along the neck and spine, and hair is likewise found in quantity on the hips and dewlaps, as in the wilder sheep of Wales. There is here that adaptation which is every where observed in this species of animals, to the physical conditions of the country in which they are naturalized. The ridge of hair along the spine, and on the haunches and breast, causes the moisture to fall off; nay, the lambs are born with a provision against the wetness of the boggy soil. There is a large growth of hair upon the parts which are in contact with the ground when the animals repose, namely, the breast, the limbs and the belly.

The county of Wicklow lying contiguous to the capital, is favourably situated for the rearing of Sheep, fitted for the demand of a numerous population. The practice of rearing lambs for early consumption has long prevailed in that country. The Sheep of the mountains are purchased by the breeders of the lower farms. The Rams are turned amongst the Ewes in the beginning of June, and by the end of July the greater part of the latter are impregnated, so that the Lambs are born in the months of December and January. At the end of a fortnight or more they are separated from the dams, and placed in pens in the feeding-house. The Ewes are driven into the feeding-house twice a-day, and those whose Lambs are dead or have been disposed of are first held to be suckled, and then the Lambs are permitted to suck their own dams. After a time they are further fed with milk from the cow

BREED OF THE WICKLOW MOUNTAINS.

in addition to that of the Ewes. In this manner the Lambs are fed for about six weeks, when they are ready for use. Under this system, the inhabitants of Dublin are supplied with as fine early lamb as any part of the United Kingdom. The Wicklow Ewes are good nurses, and hence are tolerably well adapted to this kind of management. By retarding the period of receiving the male, the Ewes are made to be impregnated in the months of summer, and having acquired the habit, the Ewes retain it, and are kept by the breeders as long as they will bear lambs.

From the quality of the wool, the goodness of the mutton, and the adaptation of the females to the rearing of early lambs, the pure Wicklow Mountain Breed was not undeserving of being preserved and cultivated. The practice of crossing, however, has been introduced, and from the more immediate profit which it affords, is more likely to be pursued than a system of progressive improvement by breeding from the native stock. The Southdown Sheep have been those chiefly employed for crossing, and are doubtless calculated to produce a race greatly superior to the indigenous one. It may be believed, however, that the Cheviot, already acclimated in an elevated country, would, as in the case of the Sheep of the Welsh Mountains, have been found better adapted to the crossing of the Sheep of these moist mountains. Nevertheless, a perseverance in a course begun, will be better than a change of purpose: and whichever race be preferred, the effect will be beneficial, and in a few generations the indigenous race of the Wicklow Mountains may be expected to cease to exist any where in the pure state.

The full benefits, however, of any kind of crossing cannot be obtained, unless a better system of management is introduced amongst the neglected flocks of the district. At present, the smallness of the possessions, and the existence of commons, are eminently unfavourable to the bringing this race of Sheep to any perfection. Their wildness of habits, is mainly the result of the circumstances in which they are placed, and can only be corrected by enclosures, by subdivison of flocks, and by a regular system of management.

Drawn by Mr Nicholson, R S A from a Painting by Mr Shiels, R S A

Drawn on Stone & Printed by Fairland

THE KERRY BREED.

Wethers, the property of the Right Honourable the Earl of Clare, Mount-Shannon, County of Limerick, selected from the old Mountain Breed of Kerry.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published October, 1840, by Longman, Orme, Brown, Green, & Longmans, Paternoster Row, London.

HISTORY.

and in some cases even will eat of animal food. He prefers soft water, as that of rivers, nay, of standing pools, to the hard water of springs. His stomach is of medium size, but the cœcum is very large; and, though he seeks food frequently, he can endure considerable abstinence, but less than the Ass, the Mule, and the Camel. He can rest from fatigue, and enjoy sleep, in the standing posture. At the age of two years he is able to propagate his race; and at the age of five he has arrived at the full maturity of youth. The male is a more powerful and courageous animal than the female, more ardent in his temper, more difficult of subjugation, but not less attached and generous. His neighing is more loud, sonorous, and frequent, and his action is more noble. When deprived of the virile powers, he approaches more to the character of the female; and although his strength, ardour, and noble carriage are lessened, he retains enough of these characters to fit him for every service, and becomes more gentle, tractable, and safe. The female goes with young eleven months, but with some variation, beyond the medium term, dependent upon food and temperament. The foal is born with long limbs, which enables it to reach the mammæ of the mother. It has considerable strength even at the birth, and is soon able to follow the dam at speed, and learns to take solid food by her side. In the fifth or sixth month, it is able to dispense with the milk of the mother, and may be separated from her without injury to its growth.

The brain of the Horse is small; but he manifests in a sufficient degree the sagacity which fits him for his condition. His sense of sight is moderately acute, and he has the faculty of seeing well in the dark; but the deficiency in the sense of touch at his extremities, which are defended by thick horn, render him not always sensible of the nature of the objects which are presented to him, on which account he is easily startled at the sight of what is unusual. His sense of hearing is good, and his large external ear is readily turned to collect distant sounds. He is cheered by the voice of his rider, and certain sounds give him pleasure, as the tones of distant music, the baying of the hounds when he has been used to the chase, and the noise of rejoicing and triumph.

His memory is tenacious with regard to localities. He remembers the path which he has once travelled after a long interval, the place at which he is accustomed to feed, and the tanks and pools at which he has quenched his thirst. A horse which had been lost in the desert, has been known to find his way for 500 miles to his native farm. He has the faculty, like the Camel, of discovering water in the distance; and hence he has sometimes been able to save the life of the sinking traveller.

The Horse is fond of caresses, and susceptible of attachment in a high degree. The Arabs, who never beat their horses, but treat them like the children of the tent, often owe their lives to their gentleness and fidelity. The Desert-Horse, so full of fire, should his master fall wounded or fainting from the saddle, will stand by him till he rise, and neigh for assistance, will shelter him from the burning sands of the desert, stand over him during the glare of noon, and stretch himself on the ground beside him when the dews of night begin to fall. Major DENHAM thus speaks of his feelings on the loss of a favourite Arab in the heart of Africa:—"The horse that carried me from Tripoli to Mourzuk, and back again, and on which I had ridden the whole journey from Tripoli to Bornou, had died a very hours after my departure from the latter. There are situations in a man's life, in which losses of this nature are felt most keenly, and this was one of them. It was not grief, but it was something very nearly approaching to it; and though I felt ashamed of the degree of derangement which I suffered from it, yet it was several days before I could get over the loss. Let it be however remembered, that the poor animal had been my support and comfort,—may I not say companion,—through many a dreary day and night;—had endured both hunger and thirst in my service with the utmost patience; was so docile, though an Arabian, that he would stand still for hours in the desert, while I slept between his legs, his body affording me the only shelter that could be obtained from the powerful influence of a noon-day sun." *

The Horse manifests sensibly the pleasure which he feels in the presence of those who treat him with kindness. The Turks, who use their horses with great humanity, may be sometimes seen followed by their fiery chargers as if they were household friends. Sometimes the Horse forms strong attachment to other animals which may have been useful to him, or which may have remained with him in his stall to cheer his solitude. Dogs are frequent favourites,—nay, other animals less likely to form the subject of attachment. Chillaby, a very ferocious horse, took an affection for a lamb which used to employ itself in butting away the flies. The Godolphin Barb formed an attachment to a cat, who used to sit upon his back when in the stable, or nestle close to him when he lay down; and the affection was mutual, for, on the death of the horse, the cat refused to take food, pined away, and died.

As the Horse is susceptible of kindness, so he is resentful of wrongs. A foal that has been cruelly treated remembers, when he has arrived at his full strength, the person that had injured him, and sometimes endeavours to avenge the wrong. A fine Cleveland Bay, who was noted for the sweetness of his temper, had on several occasions been maltreated by a strange groom. Once an unmerited blow was given on the head, when the indignant animal raised his fore foot, and struck the offender dead in

* Travels of Major DENHAM and Captain CLAPPERTON.

HISTORY.

and from the same documents we learn that the ancestors of the Israelites were not possessed of horses when they dwelt in the plains of Syria. When ABRAHAM sent his servant from Palestine to Mesopotamia to bring a wife for his son ISAAC, the man announces himself to LABAN, the brother of REBECCA, thus: "I am ABRAHAM'S servant, and the LORD hath blessed my master greatly, and he is become great; and he hath given him flocks and herds, and silver and gold, and men-servants and maid-servants, and camels and asses." No mention is made of the Horse, nor, in the subsequent enumeration of the treasures of ISAAC, is the Horse once spoken of. And when JACOB returned from Mesopotamia to the land of his kindred, he had oxen and sheep, and goats and asses, and camels, but no horses. In a later age, the descendants of JACOB multiplied in a district of Egypt lying between the Nile and the Red Sea, whence their great legislator conducted them to the country which they were to render their own. During their long abode of several centuries in the land of Egypt, they retained the habits of their ancestors in what regarded the Horse. In the law which they were required to obey, reference is made to the Ass, in order to denounce its flesh as unclean, to condemn the sin of coveting it when it belonged to a neighbour, and to command that it should be suffered to rest from its labours on the Sabbath-day; but no allusion is made to the Horse as a part of the goods of the people. Nay, it is an injunction to them that they shall not possess themselves of this animal in the land to which they were journeying. This rocky and limited territory was then, as it is now, ill suited to the rearing of the Horse, and never could be so well defended by cavalry as by infantry; and it is a historical fact that the Jews were never so successful in war as when they trusted to the latter arm, as in the earlier period of their history, and at a subsequent age, during the glorious struggle of the MACCABEES. MOSES, with a prescient knowledge of the nature of the country which was to be subdued, discourages the cultivation of an instrument of war which other nations valued so highly. He counsels the people, when they go to battle, to have no fear of the horses and chariots of their enemies; but to put their trust in the GOD of ISRAEL, who had brought them from the land of Egypt. He directs the future ruler of the country not to multiply horses in the land, and so literally was the order obeyed that it became the practice to hough the horses which were made prize of in the field. King DAVID, on one occasion in which he took 700 horses and 1000 chariots, hamstrung them all except 100 of the chariot horses which he reserved. He speaks with a proud disdain of horses as an instrument of war, and represents them only as employed by the enemies of his country. But the restraints of the custom and the laws were soon broken through, and SOLOMON formed a numerous body of cavalry and chariots. He even established a regular trade in horses with Africa, and supplied the neighbouring country with those of Egypt. Further, it is remarkable that when the Jews entered Palestine from the south, they encountered no horses; for no mention is made of cavalry during the first campaign of JOSHUA. The Philistines alone possessed horses in the south of Syria, and they seem to have been an Egyptian colony. Nay, it appears that Arabia and all the countries stretching from Palestine to the Persian Gulf were at that time destitute of horses. When the Midianites, an Arabian nation, were subdued, the spoil consisted of sheep, of oxen, and human captives, but no horses are mentioned. When, in the reign of SAUL, a war was carried on with certain Arabian nations on the Persian Gulf, the spoil consisted of slaves, of camels, of sheep, and asses; and in an attack on Judea by the Midianites, in a subsequent age, they came, we are told, "with their cattle and their tents; and they came as locusts for multitude;" and no mention is made of horses. But although the Jews, on their first entrance into Palestine from the south, encountered no horses, yet, no sooner did they come into contact with the nations to the north, than they were met by warlike enemies possessed of horses and chariots. But these nations approached the countries on the Black Sea and the Caspian, the great region of the Asiatic Horse, whence, doubtless, they derived their horses, and not from Africa, with which they could have no intercourse, nor from Arabia, which had no horses. If, then, we are to place reliance upon the only historical records of the time, we must come to the conclusion that Syria, and thence to the countries of the Euphrates and the Persian Gulf, were not countries of the subjugated horse at a period posterior to the historical era. These countries manifestly derived the horses which peopled them in a subsequent age, not from the south, but from the great Officina Equorum on the north. It was from their contiguity to this region of the Horse that the empires of Assyria and Medea so early became nations of conquerors and horsemen. And we may believe that the people of Northern Syria derived the horses with which they encountered JOSHUA and the Jewish infantry from the same source. From other documents we learn that Asia Minor, from the earliest times, was a country of horses; and these, we must believe, were derived from the north, and not from the south. The conclusion, further, which we may draw from these historical notices, sacred and profane, is, that the Egyptians derived their horses from the vast continent which they inhabited, and not from a region from which they were separated by a tract of country in which the Horse did not exist in the first ages. We may rather believe that this remarkable people derived the horses which they so early possessed from regions in which horses existed from the earliest times, and which we have as much reason to regard as indigenous to Africa, as those which people the plains of Tartary are to Asia.

The African horses are distinguished from the Asiatic by their longer limbs, by their smaller girth at the loins, and by the

THE KERRY BREED.

PLATE V.

WETHERS, the property of the Right Honourable the EARL of CLARE, Mount Shannon, County of Limerick; selected from the Old Mountain Breed of Kerry.*

The Breeds of Sheep of Ireland may be divided into two general Classes, those of the mountains, bogs, and moors, and those of the plains, valleys, and richer country. In the former class, one breed has been described, that of the Wicklow Mountains, which has been seen to be closely allied to the ancient Sheep of Wales. The mountain breeds of other parts of Ireland present very different characters, and so little resemble any other breeds of Sheep in the British Islands, that we might suppose them to have a distinct parentage, did we not know the great changes produced in the form and characters of the species by the agency of food, climate, and situation. It is in the west of Ireland that we naturally seek for the more ancient races of the country, and we there find them mingled in blood with one another, and with the imported varieties which have spread over the same tracts, but in many cases presenting such characters as to indicate the traces of distinct breeds, under the common acceptation of the term. But it would be uninstructive to discriminate the minor varieties. It will suffice to present an example of one, which may be regarded as the type of several others, and whose characters lead us to conclude that it has remained for ages in its present state.

The Kerry Breed of Sheep, notwithstanding of neglect and insufficient food, exceeds in size the breeds of Wales, of the Wicklow Mountains, and of many of the Old Forests of England. The horns are generally small and crooked, and sometimes wanting in the female, although some of the allied varieties of other parts have the horns large and spiral. The wool is coarse, and hairy on the haunches, and to a certain degree along the ridge of the back, but on the sides it is very short and fine. The white colour of the fleece prevails, but there is a constant tendency to the development of the darker shades; and the whole Sheep would become black and brown, were it not for the choice by breeders of those which are white. These Sheep are in a remarkable degree wild and restless in their habits. In shape, eye, neck, position of the head, and general aspect, they approach to the Antelope or Deer tribes more than any other Sheep of this country. They feed so slowly, that, even after they have arrived at maturity of age, they require a long time to become fully fat. They have, however, a great disposition to accumulate fat internally, and they are fit for the butcher when their external appearance would indicate that they were still lean. Their mutton is of a juiciness and flavour which causes them to be greatly valued for domestic consumption. This is their really valuable property, but it is not of itself sufficient to render them deserving of extended cultivation.

Ireland, from the mildness of its winter and moisture of the climate, is in a peculiar degree suited to the production of the grasses and other herbaceous plants fitted for the food of Sheep; but a great part of the country is covered with peat, either collected in vast beds in the plains, or rising into eminences, or spread in thinner strata over the hills. Like all the countries of ancient Europe, Ireland was once covered with great forests, which neglect, and the prodigal waste of timber for fuel, and above all, the ravages of incessant wars, have long since eradicated. GIRALDUS CAMBRENSIS, who came into Ireland after its first conquest by HENRY II. in the 12th century, states, that the country was full of woods on every side, but that the English, on gaining possession of it, cut them down, partly to deprive the banditti of their lurking places, and partly to gain space for cultivation. For centuries the work of destruction proceeded on every hand; and on the quelling of the great Rebellion in the reign of ELIZABETH, the remaining forests were still further reduced. To the motives which formerly operated was now added the desire of gain, and immense ship-loads of magnificent timber were sent to foreign parts, and many charcoal manufactories were established. Even in the 17th century, the ruin of these noble woods had not been completed. BOATE, who published his Natural History of Ireland about the middle of the century, though he complains that many great woods which the maps represent had vanished, still describes numbers as existing which are now no more. Speaking of the province of Leinster, he says, that Wicklow, and King's and Queen's counties, were throughout full of woods, some many miles long and broad, and that part of the counties of Wexford and Carlow were greatly furnished with them. Of Ulster, he writes, that there were great forests in the county of Donegal, and in the north of Tyrone; likewise at Fermaugh, along Lake Erne, in Antrim, and in the north part of

---

* These Sheep are represented divested of their fleeces, and with the tails shortened.

THE KERRY BREED.

Down. The greater part of the latter county, however, as well as Armagh, Monaghan, and Cavan, which in the war with Tyrone, had been encumbered with thick forests, had then become almost bare. With respect to Munster, he tells us, that the counties of Kerry and Tipperary possessed many great forests, notwithstanding that the English, especially the EARL of CORK, had made great havoc with the woods.

In this manner proceeded the spoiling of the natural riches of the beautiful Isle. The last Wolf was killed at the beginning of the 18th century, showing that then the destruction of the great Irish forests was nearly completed. In the place of these verdant Woods have arisen the dreary Bogs, which have covered so great a part of the land with the aspect of desolation,—affording fuel, indeed, by the sweat and toil of the miserable inhabitants, but covered with the innutritious plants proper to peat, and affording but a scanty sustenance to the herds and flocks that tenant them.

The general treatment of the Sheep of the mountainous and peaty tracts of Ireland is rude, in a degree which the breeders of England will find it difficult to credit. Sometimes the animals are mixed in common on the peaty mountains and flat bogs, where numbers of them perish from want and disease; and often they spread like wild beasts over the country, stealing what they can obtain: sometimes they are coupled together, and left to find their food as they may, or tethered on patches of grass and rushes, or kept in the miserable cabins of their owners. All over the west of Ireland, from Donegal to Kerry, are to be found half-starved Sheep, either straying in wild flocks, of every age and kind together, or dragging one another in couples along, or fastened where they can find any food. "Our best sort," says Mr SAMPSON, in his Survey of Londonderry, "are bought either in the fairs of the south-western counties, or else at Dervock, to which they are driven by jobbers from those pasture counties. I need say nothing of them. Our own strain is of all shapes and qualities, horned and without horns, coarse woolled and fine; almost all are humpy-boned and restless. Not long ago, one might see hundreds of Sheep travelling from farm to farm unnoticed and unowned. Every servant boy in the county who had a few shillings saved, laid it out on a Sheep or two, which he let loose on the bounty of Providence, and the toleration of his neighbourhood. Towards May, all these flocks were driven to the mountains. In the time of snow, these depredators, like the locusts of Egypt, devoured every thing before them. I have lost at one time two thousand head of curled kale. They get no winter fodder but what they can steal."

These remarks applied to the smaller races of the bogs and mountains, and are still partially applicable. The long-woolled Sheep of the richer country are under different circumstances, and will be referred to hereafter. The means by which the more neglected races can be improved, are the same as in other cases have been adopted,—a system of judicious crossing, or the substitution of superior breeds, and a better system of feeding and general treatment.

But when we speak of defects in the husbandry of Ireland, we must remember that the removal of them is not always within the reach of common remedies. The evil may be seen, but the source of it may lie in the condition of the people, the state of property, and the relations between landlord and tenant. Six hundred years ago, Ireland was subjugated by her avaricious neighbour, and successive rebellions led to repeated overthrows, and to renewed plunder. The country was divided amongst the conquerors and their adherents, and for ages a great part of the disposable produce was withdrawn. Absenteeism became the habit of the favoured few, and at this hour, a larger tribute is thus imposed upon the industry of the country than any conqueror ever imposed upon a subject colony; and the country is poor, her labourers are unemployed, and her population is discontented, notwithstanding that she exports the largest quantity of raw produce of any country in the world. One effect results from this destitution, that there is no barrier between the tenant and the demands of the receiver of rents. In England, the habits and condition of the people are opposed to an excessive exaction on the industry of the farmer. The English yeoman will not take land at all unless he has the means to live, and to obtain a fitting return from his capital in trade. The Irish peasant must take land in order that he may subsist, and is compelled to share his pittance with another to the uttermost residue that will permit himself to live. Hence the rents in Ireland are larger, in proportion to the means of payment, than in almost any country in Europe. While this defective relation exists between the landlord and tenant,—while the disposable produce of the land is expended out of the country which it should enrich, and away from the poor man whom it should employ,—while the land is parcelled out in order that excessive rents may be wrung from those that till it,—while the pecuniary claims of the landlord or middle men are more directly answered by means of peasants content to subsist on the scantiest pittance, than by the industry of tenants possessed of means to improve the land,—we must expect that the resources of the country will be imperfectly developed, and that poor and wretched husbandmen, as well as miserable breeds of Sheep, will possess it.

THE FOREST BREEDS OF ENGLAND.

1. Ram of the Exmoor breed, bred by Mr Westcott, Hawkhurst Common, Exmoor.

2. Ewe of the same breed.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published October, 1840, by Longman, Orme, Brown, Green & Longmans, Paternoster Row, London.

Drawn by Mr Nicholson R.S.A. from a Painting by Mr Shiels, R.S.A.

Drawn on Stone & Printed by Fairland

THE FOREST BREEDS OF ENGLAND.

PLATE VI.

1. RAM of the Exmoor Breed, bred by Mr WESTCOTT, Hawkhurst Common, Exmoor.
2. EWE of the same Breed.

England, like the sister Island, was once covered with noble forests, which gradually fell before the ravages of war, and the progress of the settler. But, on the conquest of the Normans, vast tracts of fine country were retained in the state in which they then existed, for the purposes of the chase, often, indeed, partially or wholly denuded of the woods, but retaining the names of forests, chases, and other denominations indicative of their original nature, and the purposes to which they had been applied; such were Windsor Forest, Sherburne Forest, Mendip Forest, and many more. Even to the reign of ELIZABETH, a large part of the whole surface of England was in the state of forest; but in place of vast tracts reserved for the capricious sports of the sovereign, or the great feudatories, the unoccupied grounds had been gradually settled upon, acquired by individuals through royal grants and otherwise, or left in a state of common property, in which inhabitants of towns or the neighbouring counties acquired the privilege of pasturage and other rights. The Royal Forests were by degrees reduced to a small extent, as compared with their former state, and are now mostly planted for the supply of naval timber; and, with respect to the Commons, these have been long in the course of division, under the sanction of Acts of Parliament.

The native Sheep kept on these forests and larger commons often acquired distinctive characters, forming well-defined breeds. Of these several yet remain, and until late in the last century they were very numerous. Most of them, however, are no longer to be recognised as separate varieties, and few of them remain without intermixture with the Sheep of the adjoining country. They were generally of small size and defective form, but had usually short fine wool suited for the manufacture of cloths. Their faces and legs were sometimes white, but generally black, grey, or dun: they had usually horns, but sometimes the horns were wanting in one or both sexes. They were wild and thriftless, but, like all the smaller unimproved races, yielded excellent mutton. The cultivation of the forests in all cases caused the substitution of superior breeds; and even where cultivation did not take place, the interests of the owners led them to cross their flocks with the superior breeds of the cultivated country.

In the poorer and more elevated parts of the counties of Stafford, Leicester, Cheshire, Shropshire, and others, are still to be found the remains of old Forest Sheep, distinguished by black or grey faces and legs, and yielding short clothing wool. Those of Cannock Chase yet exist, though they have been mostly crossed. They are destitute of horns in both sexes, and the wool weighs from two to three pounds the fleece. The Sheep likewise of the ancient Forest of Delamere in Cheshire are still in existence. These are the type of the old Sheep of Shropshire, and approach to the general form of the Southdown.

Of the Forest Breeds, two remarkable ones yet exist in the elevated country between the Bristol and British Channels, the one inhabiting the heathy tract of granite forming the Forest of Dartmoor, the other the district of greywacke of the Forest of Exmoor, at the sources of the river Exe, on the confines of Somerset and Devon. These two races have long attracted attention, from their having supplied the well-known Oakhampton mutton, so named from the sheep having been killed at that town, whence the carcasses are sent to London. But the Oakhampton mutton now not only includes that of the Forest Sheep, but that of the crosses between them and other breeds.

The Dartmoor Sheep are very small in size, and, like the Sheep of Wales, have long soft wool, in which respect they differ from the other Forest Breeds. The faces and legs are white, and the males have horns. They are exceedingly wild and restless. They are reared in their native pastures of heath, and fattened in the lower country. They will remain feeding in the valleys in winter, but no sooner does the vegetation of spring commence than they seek to regain their native pastures, and endeavour to break through the fences opposed to their return. Even the crosses retain this instinct of the race.

These Sheep produce mutton which bears a high price, and are constitutionally well suited to the barren undrained district to which they are indigenous; but yet they are an unprofitable race of Sheep, from their small size, defective form, and above all their wild and restless temper. The immediate profit from crossing them has been so great that the pure breed is rapidly diminishing in numbers, and will soon become extinct. The principal breeds with which they have been crossed are the Leicester and Southdown. The Leicester cross is preferred, being more hardy than that with the Southdowns,

THE FOREST BREEDS OF ENGLAND.

which seem to amalgamate less freely with the long-woolled breeds of Wales and the west of England, than even the long-woolled breeds of the plains.

The Exmoor Sheep are yet smaller, more wild and more intractable than the Dartmoor. The district they inhabit, near the Bristol Channel, is of limited extent. Although their habitat is so near to that of the Dartmoors, they possess their own characters, and so may be termed a breed. The males have a large beard under the chin, from which cause they have the aspect of Goats; and they have much of the agility and strength of these animals. Like Goats they ascend precipices, and are with difficulty confined by ordinary walls and fences. They are very bold, attacking Sheep much larger than themselves. The females, as in the case of other wild breeds, are considerably smaller than the males; from whom they receive the roughest treatment. The wool of these curious Sheep is long and silky, and their mutton is excellent. Like the Dartmoors they are disappearing in their pure state from the effects of crossing, and have even in some cases given entire place to the Cheviots, which have been introduced into the district, and are found in all respects superior to the native stock.

A race of Sheep of allied characters to the Exmoor stretches westward along the Bristol Channel to the rich country on the Parret; and even on the Mendip hills, to the eastward, traces of the Exmoor form appear in the races of the country. On the great Forest of Mendip the Sheep were formerly distinguished by the fineness of their wool, but with the enclosure of the forest the ancient race ceased to exist in a state of purity.

Of the various Forest Breeds of England, none is now likely to be cultivated in the pure state, because a long course of careful breeding would be required to communicate the suitable development of form, and because superior breeds have now been produced, which can either be made to cross the original ones, or be substituted for them. But it is to be regretted that earlier attention was not directed to some of these races, which possess fine wool, and which, by being acclimated in a lower country, would have increased in size and economical value. Some of the Forest Sheep of Staffordshire were at least equal to the original Southdowns, and had they been cultivated with the same care might have been extended to districts to which the Southdowns, bred in a country of chalk and fine herbage, are less adapted.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairland, 46, St. John's Sq.

BLACK-FACED HEATH BREED.

Ram, 3 years old, bred by Mr. Thomas Robertson, Broomlea. County of Peebles.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London: Published April 1842, by Longman, Brown, Green & Longman, Paternoster Row.

Drawn by Mr Nicholson, R.S.A. from a Painting by Mr Shiels, R.S.A.

Drawn on Stone & Printed by Fairland.

THE BLACK FACED HEATH BREED.

Ewe, 3 years old, bred by Mr Thomas Robertson, Broomlea, County of Peebles.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published October, 1840, by Longman, Orme, Brown, Green, & Longmans, Paternoster Row, London.

THE BLACK-FACED HEATH BREED.

PLATE VII.

EWE, Three Years' Old, Bred by Mr THOMAS ROBERTSON, Broomlea, County of Peebles.

From the high lands of Derbyshire on the south, to the confines of Scotland on the north, extends a chain of rugged heathy mountains, whose summit ridge separates the waters of the Tyne, the Tees, the Swale, the Wharfe, and other rivers which flow to the eastward, from those of the Ribble, the Lowther, the Lune, and others which flow westward. The elevation of this tract is from 1200 to 3000 feet, the highest summits being Cross Fell, near the sources of the South Tyne and Tees, on the eastern part of Cumberland; Skinner Fell, on the confines of Yorkshire and Westmoreland; Wharnside and others in the westerly part of Yorkshire. This central chain is separated from the yet higher mountains of Cumberland and Westmoreland on the west, by the beautiful vales of Kendal and Eden. The tract is destitute of boldness and grandeur, and, towards the east, passes into the tame moors of Northumberland, Durham, and Yorkshire. This dreary tract is generally covered with coarse heaths, mixed with sedges, rushes, and the less nutritious grasses, and, from being exposed to the winds of both the eastern and western seas, possesses a cold climate. It has given rise to a race of Sheep now very widely diffused. This race has been termed the Black-faced Heath Breed, a name which, though it does not distinguish it from some of the Forest Breeds, may be retained, as indicating its peculiar habitat in a country of heaths.

The Black-faced Heath Breed is chiefly found in the more northerly division of the chain of mountains referred to, beginning in the heathy lands of Yorkshire and Lancashire. It extends across the vales of Kendal and Eden to the higher mountains of Cumberland and Westmoreland on the west, and by the Carter Fell into Scotland, where it occupies the great range of greywacke hills stretching from St Abb's Head on the east to the Irish Channel on the west. It stretches through the upper part of Lanarkshire into Argyleshire, and all through the Highlands of Scotland from the Grampians to the Pentland Firth. It has spread to all the Hebrides, and even to the islands of Orkney and Zetland.

This breed may be supposed to have found its way into Scotland by the mountains of the north of England. It has been settled for a period unknown in all the high lands of the counties of Roxburgh, Dumfries, Selkirk, Peebles, Lanark, and the adjoining districts. Tradition asserts that it was introduced into Etterick Forest by one of the Kings of Scotland, but it is rather to be believed that it found its way into the Border counties by the natural route of the mountains. Its introduction into Argyleshire, and the Central and North Highlands, has been of very recent origin, having taken place about the middle of last century, when Sheep began to supersede the herds of cattle which then abounded in the Highlands. By degrees, it displaced the ancient races of the country, of which only scattered remnants now remain.

The Black-faced Heath Breed possesses characters which distinguish it from every other in the British Islands. It is of the smaller races of Sheep with respect to the weight at which it arrives, but is larger and more robust than the Zetland, the Welsh, and the ancient Soft-woolled Sheep which it displaced. It somewhat resembles the Wallachian, and as the latter has an affinity with the Persian, it might be conjectured that it is derived from the East. But it is more natural to assume that its peculiar characters have been communicated to it by the effects of food and climate, in the rough heathy district from which it is derived. The male and the female have horns, very large and spirally twisted in the male, but sometimes disappearing in the female. The limbs are lengthy and muscular, and the general form is robust, but the shoulders are not so low as in the Welsh breeds, nor are the posterior limbs so long. The face and legs are black, and there is a tendency to this colour in the fleece; but there is no tendency to the brown or russet colour, which distinguishes the older fine-woolled races. The fur is shaggy and the wool coarse, in which respect it differs from that of all the other mountain breeds of the country. It is of medium length, and weighs about three pounds the fleece when washed. These Sheep are very hardy, and capable of subsisting on the coarsest heaths. They do not, however, like the Sheep of Wales, prefer the summits of mountains, but feed wherever pasturage can be obtained; and are not so nice in the choice of herbage as the Southdowns, Merinos, and other races derived from countries yielding the finer grasses. Although wild and independent in their habits, they are not so restless as the mountain Sheep of Wales and other parts, but can be induced to remain in enclosures when sufficient food is supplied to them. The ordinary weight of the wethers when killed at the age of about four years, is fifteen pounds the quarter, but individuals are made to exceed this weight when properly

THE BLACK-FACED HEATH BREED.

treated and sufficiently fed from an early age. The mutton is not so delicate as that of the Sheep of Wales, or the Southdowns of England, but it is more juicy, has more of the venison flavour, and is preferred to every other by those who are used to it. It is the mutton which is principally consumed in all the larger towns of Scotland, and great numbers of the Sheep at the age of three years and upwards, are carried to the pastures of the south to be fattened for the English markets.

An important property of this breed is its adaptation to a country of heaths, in which respect it excels every other. It is this property, as much as its hardiness, that has rendered it so suitable to the heathy mountains where it is acclimated, and where it finds subsistence beyond the ordinary range of other Sheep. It feeds on the loftiest mountains, up to the very verge where the heaths give place to the musci and other plants of the higher latitudes. Feeding much on the shoots of heath, these Sheep find subsistence in the times of snow and severe frosts better than any other in this country. The mothers are hardy nurses, and are able to bring up their young when they themselves have been exposed to severe privations. A great defect of this breed is the character of the fleece, which, besides being thin on the body, yields wool fit only for the manufacture of carpets and the coarser stuffs. Little general attention has been paid to the quality of the fleece, although it is susceptible of considerable improvement. A defect of the wool very common in this breed is the existence of what are termed kemps. These consist of hard and wiry filaments mixed with the pile. They are deficient in the felting property, and in the oily secretion which moistens the true wool. The removal of kemps is effected by superior food, and by breeding from parents free from the defect. Sometimes individuals of this breed are born with wool which is fine and short. Were advantage taken of this occurrence, it might be possible, by means of breeding, to produce a variety with fine in place of coarse wool.

This breed, extending over a great variety of situation and soils, from the moist moors of Yorkshire and other parts to the rocky mountains of the north of Scotland, presents a great diversity of size and aspect. In some of the lower and less heathy moors both of England and Scotland, the Sheep have so far deviated from the ordinary type as to have lost their horns, and the black colour of the legs and face. This variety is generally of smaller size and less hardy habits than those which are naturalized on the drier mountains of abundant heath. The best of the breed are found in Tweeddale in Scotland, which may be partly due to the nature of the country, and partly to the superior care bestowed in breeding. Those existing in the hills of Cumberland, Westmoreland, Yorkshire, and Lancashire, are much inferior to those of the Border counties of Scotland. Over a great part of the Highlands and Islands of Scotland, the breed has degenerated from the want of care and from insufficient food. In many of these situations, indeed, the stock may be said to be mixed, for it has been the result of crosses with the original races. This is in an especial manner the case in the Hebrides, where the animals are small, and every way inferior to the genuine Heath Breed.

The treatment of this hardy race of Sheep has a necessary relation to the circumstances of the country in which it is produced. The breeder of the Sheep is not usually the person who fattens them for use. He rears them to the age which suits the nature of his farm, and disposes of them to others who have farms on which they can be kept till they have arrived at the proper age for being fattened. They are then disposed of to the graziers and farmers, whose pastures or means of supplying artificial food enable them to prepare them for the butcher. This species of transfer is continually going on, and the numerous fairs of the country are the marts to which vast flocks of those Sheep are brought at different times. They find their way to the ultimate markets of consumption at various ages, but mostly when between three and four years old, and when the mutton has arrived at its greatest perfection in juiciness and flavour. Increasing numbers of them are now carried to the markets of London and other great towns, aided by the facilities of intercourse afforded by steam navigation.

The means of rearing these numerous Sheep are the stocks of ewes maintained on the farms of the breeders, the number of each flock of ewes depending on the quality and extent of the natural pastures, and the age to which the progeny is reared on the breeding farm. Thus when the Sheep are sold when lambs or hogs, the proportion of ewes is in a corresponding degree larger than when the progeny is kept to the age of wethers. In general, one shepherd is reckoned sufficient for twenty-five scores of ewes, but for a much greater number of young sheep and wethers.

The rams are admitted to the ewes about the 22d of November, so that the season of lambing may not begin before the tardy vegetation of spring may be expected. During the months of winter, the pregnant ewes are suffered to range over those parts of the farm where food can be picked up; the rushes, sedges, and other herbaceous plants mixed with the heaths, affording a scanty subsistence, rendered precarious by the falls of snow which often cover these dreary wastes for weeks or months at a time. The artificial provender that can be supplied is confined to a little coarse hay during deep snows, but even this is often wanting, and all the food supplied is what the animals can collect on their natural pastures. These wild and hardy Sheep, however, dig up the snowy surface to reach the herbs beneath, and support life under circumstances in which the more delicate races would perish. Yet, as it is, many die from the inclemency of the weather and the want of food, and numbers often are overwhelmed by falls of snow so sudden and violent that there is no escape. In districts where the mountains are of less elevation,

HISTORY.

causes unknown to us. He sustains the temperature of the most burning regions; but there is a degree of cold at which he cannot exist; and, as he approaches to this limit, his temperament and external conformation are affected. In Iceland, at the arctic circle, he has become a dwarf; in Lapland, at latitude 65°, he has given place to the rein-deer; and in Kamtschatka, at latitude 52°, he has given place to the dog. As he approaches to the limit of his natural habitat, he loses much of the fiery spirit and swiftness which he possessed in more genial climes. He may be hardy, sagacious, and enduring; but he needs the whip and the spur, and is rarely roused to continued action by his natural energy and love of motion. The nature and abundance of his food, too, greatly affect his character and form. A country of heaths and innutritious herbs will not produce a horse so large and strong as one of plentiful herbage. The horse of the mountains will be smaller than that of the plains, the horse of the sandy desert than the inhabitant of the watered valley. By a combination of these, and, it may be, of other less apparent agencies, the Horse, like the Ox, the Sheep, and other creatures formed for the companionship of man, becomes suited to the conditions under which he is called to exist. In the mountains of the colder countries he is small, hardy, short, and muscular in his limbs, and covered with abundant hair. Such is the little horse of Norway, of a great part of Sweden, and other mountainous countries of the north of Europe. In countries of abundant herbage, such as Holstein, Jutland, Flanders, he becomes enlarged in his form, and fitted for the exercise of physical strength, with a diminution of the powers of speed. When he passes into countries where, from the heat of the climate, his natural food is burned up for a part of the year, he becomes of smaller bulk, and suited to subsist on scantier food. Thus, the horses of the south of Europe are of lighter form, and more easily nourished, than those of England and other countries where grasses are abundant; and this change of character still more appears when we have passed into Africa, or the sandy deserts of Asia. There the light and agile horse of the desert shows himself to be adapted to the scantier nourishment on which he must subsist. The heavy horse of England and the plains of Germany could no more subsist on the herbs of the sands of Tripoli than on the heaths of Lapland. He would perish in such circumstances, did not Nature provide the remedy, by adapting him to his condition.

The pristine region of the Horse cannot, any more than the origin of other species of animals, be known from any records of tradition and history. We may form two opinions on the subject, supported in an almost equal degree by analogy and reasonable probabilities. Either we may believe that the Horse was called into existence in some one region, which may be termed the cradle of the race, and whence he has spread, as from a centre, to other parts of the world; or we may believe that the species was called into existence in more than one place, and was thence diffused as from different centres. If we shall adopt the former supposition, it seems natural to refer his origin to the countries of Western Asia to the southward of the Euxine and Caspian Seas, because there we are taught to look for the origin even of man, because there the Horse is found in great numbers, because there the physical circumstances of the country are suited to a high development of his form and faculties, and because this is a fitting centre whence he might be diffused to other parts of the world. On the other hand, if we shall believe that the species has been diffused from different centres, we may suppose that one at least existed in Africa, and perhaps one in Eastern Asia. But without seeking to resolve this difficult problem, we may infer that the Horse presents a different type in the three great divisions of the globe, corresponding, perhaps, in some degree, with the three great families of mankind, the Ethiopian, the Caucasian, and the Eastern Asiatic. The Horse of Africa differs as much from the Horse of Western Asia as the man of Nubia from the Greek of the Peloponnesus. The Horses of Eastern Asia form a class of small active ponies, which extend, modified, however, by conditions of climate and food, through the vast regions of Chinese Tartary, through the great empire of China itself, through Cochin China, the countries of the Birmans, through the Malayan Peninsula, and the great Islands of Asia.

The Horse appears to have been reduced to servitude from the earliest formation of human societies in the East. But the first country in which we hear of its existence is a kingdom of Africa; and there, as we learn from indubitable records, he was subjected to extensive domestication. Of the employment of the Horse in Egypt in the earliest ages of mankind, we have the testimony of history, sacred and profane; and the marvellous monuments of this great community, which have survived the lapse of more than 3000 years, attest the early subjugation of the animal. In innumerable sculptures, as fresh as if they had been chiselled yesterday, the Horse of the Egyptians appears as he was harnessed to the chariots of their warriors and kings; and the subsequent history of the same country shows how much it depended upon his power in war. Although the Egyptians employed the chariot largely in battle they were not ignorant of the use of cavalry, for we learn that they had their horsemen as well as charioteers, and mounted Egyptians are sometimes seen on their monuments. Like other nations of the same era, however, they gave the preference to the chariot, which consisted of a light low carriage, open behind, containing the charioteer and the combatant, having a shaft or beam, and drawn by two or more horses yoked abreast. The chariot was likewise used by the Greeks in ancient times, by the Persians and other Asiatics, and by the early Celtic nations of Europe.

It is from the records of the Jewish history that we receive the earliest accounts of the subjugation of the Horse in Egypt;

and Tripoli. Those of the interior, on the confines of the Great Desert, are described as of smaller size, but as being swift, and wonderfully patient of thirst, hunger, and toil. Some of them in the inland mountains of Morocco are said to be fed solely on camel's milk; to be of matchless endurance, but to droop and die when brought to the countries on the sea and deprived of their habitual aliment.

Turning from the regions of the swift and agile Horse of Africa to the countries of the Euxine and Caspian Seas, which we may regard as another central region of the Horse, we find the animal reared under different conditions, and exhibiting a different class of characters. He is here of a robust form, with broader chest and more muscular limbs. He is superior in strength of body to the slender African, but inferior in speed. His bearing is more bold, his aspect more noble. He is capable of tasks to which the strength of the African is unsuited; but he requires a larger supply of food, and would sink under the thirst and slender nourishment on which the other can subsist. This race is found in perfection in the countries near the Euxine and Caspian Seas, in the mountains of the Caucasus, in Armenia, and other parts of Asia Minor. The Circassians, amongst the western Asiatics, are noted for the beauty and excellence of their horses. These warlike mountaineers have their breeds of noble blood, on which they set an extreme value. They brand them by peculiar marks, as a horse-shoe, an arrow, a lance, the imitation of which they punish as a capital crime. The Turcomans possess horses of great strength and power, fit for war and the chase; and likewise the Kurds, who have in every age maintained their liberties. It is from the same countries that the Turks derived that splendid cavalry with which they subdued the neighbouring nations. Recurring to the happier ages when Asia Minor was covered with cities and the monuments of civilization, we find that it was distinguished for its horses as for all its productions. Armenia supplied with horses and mules the merchant princes of Sidon and Tyre; and in a subsequent age the horses of the same countries are described by VEGETIUS and other writers as being a race tall and beautiful. HOMER, nearly a thousand years before the Christian era, speaks of the horses of the same countries as yoked to the chariots of his heroes; and, at a subsequent period, the horses of Capadocia, Phrygia, and the neighbouring states, furnished steeds to contend in the Olympic games of Greece. Now the fertile regions of Asia Minor are laid desolate. The glory of its twenty nations has passed away like a dream. Ages of tyranny and misrule have marred the image of the lovely land, and left us but the recollection of its former happiness. Its arts have disappeared with the palaces of its kings and the tombs of its heroes. If its noble horses still survive, though deprived of their ancient glory, this is because the tyranny of man has not been able wholly to destroy the bounties of nature in her animal productions. All the horses of the countries referred to, although varying in strength and size with the fertility of the districts they inhabit, exhibit a common class of characters.

To the southward we enter the deserts of Syria and Mesopotamia, and the arid wilderness of Arabia. Of all the countries of the East, Arabia has become the most celebrated for its horses. This wild and barren country, however, does not seem to have acquired the Horse until the less remote periods of its history. The Camel, the Ox, the Sheep, the Goat, afforded the inhabitants of old, as at the present day, their chief means of subsistence. The Horse appears to have been added as their habits became more predatory. Their contact with Persia, and the countries of the Horse on the north, put it in their power to obtain horses; and they acquired them just as we see tribes of savages in modern times possess themselves of fire-arms, which they use for mutual destruction or defence. No records exist to show at what era the Arabians began to use horses, but it appears that they were little multiplied in the country till after the Christian era. Even in the reign of TIBERIUS CÆSAR, STRABO states of the south of Arabia, then termed Arabia Felix, that it had neither horses nor mules; and regarding the north of Arabia, or Arabia Deserta, he says, that it had no horses, and that camels supplied their place. The warlike successors of MAHOMET became horsemen, and laid the countries of the Horse in the East under contribution; but up to the age of the Prophet himself, the horses of the country were neither numerous nor generally diffused. On his advance to Mecca to take vengeance on his enemies of the Koreish, he had only two horses in his army, and in the list of plunder which he carried back with him, while there were camels, sheep, silver, and human captives, not a single horse is mentioned. When once, however, the Horse was added to the domesticated animals of this eager and wandering people, the gift was cultivated with boundless care. With them the Horse acquired a value which it could scarcely any where else possess. Not luxury and enjoyment alone depended on their horses, but liberty and life; and they acquired a love and regard for the animal which no other people have manifested in the like degree. They speak of their horses with all the warmth of eastern enthusiasm, they cherish the memory of their feats, and boast of their ancestry. They have formed to themselves families which they hold to be of noble lineage, and breeding from these, and preserving the purity of descent, they have succeeded, beyond all the people of the East, in perpetuating a race of horses possessed of many valuable properties, and suited in an eminent degree to the condition of the country and the uses of the people.

The horses of Arabia are connected in all their characters with those of the Caucasus and Asia Minor, as might be inferred from the geographical position of the country in contact with the great region of the Asiatic Horse on the north. But inhabiting

and artificial shelter can be supplied, the condition of these mountain flocks is in a corresponding degree less precarious; but, generally, they are placed in situations which subject them to the evil of frequent destitution.

When the season of lambing arrives, the ewes are often in a very emaciated condition; but such good and hardy nurses are these mountain Sheep, that they are able to bring up their young under privations which few other Sheep could contend against. The shearing of the Sheep takes place about the beginning of July. The ewes, as well as the other grown Sheep on the farm, are driven to a river or pool, and made to leap from the bank and swim across. The same care is rarely bestowed on washing these wild Sheep as in the case of the finer breeds. In a few days after being washed they are shorn. After the middle of July, or about three months from the birth, the lambs are separated from the mothers. This is done simply by removing them to another part of the farm. In a short time they forget one another, and the milk of the dams ceases to be secreted. It was formerly the universal practice to milk the ewes for six or seven weeks, or even more, after the lambs were weaned. This practice is now considerably disused in the districts where the management of Sheep is the best understood, it being found that the profit from the milk is rarely compensated by the disturbance of the flock, and the exhaustion of the ewes previous to the perilous season of winter.

The lambs on being weaned become, in the language of farmers, hoggets or hogs. The wether hogs may then be disposed of, and such of the ewe hogs as are not to be retained for the purpose of supplying the place of the old ewes, which, after having borne lambs for three or four years, are to be disposed of. After the lambs are weaned, such of the ewes as have borne the proper number of lambs are selected, and sold in the course of the autumn. When the young Sheep are not disposed of in the first year, they are kept until the second year, and sometimes until the third or fourth years. Their treatment while on the farm is the same as that of the ewes.

A practice exists in the case of these mountain Sheep, the utility of which is proved by long experience, of anointing the skins previous to the months of winter. The substances used are tar and butter, prepared by boiling the butter and tar together. The proportions used vary in different districts. In some places, six pounds of butter and one gallon of tar are used for twenty Sheep, and in others the quantity of tar is larger. The period of smearing is the end of October or beginning of November. The method is to separate the wool by the finger, and spread the ointment longitudinally from head to tail, so that the whole body shall be covered. The purpose served by the process is to remove insects and cutaneous diseases, and to defend the skin from wetness. It is peculiarly beneficial in the case of this breed, whose fur is less close and fine than that of any other Sheep. The effect, however, is to diminish the value of the wool, by staining it with the colouring matter of the tar, which renders it less fitted for receiving the brighter colours in dyeing. But it increases the weight of the fleece, and conduces in so great a degree to the health of the animals, by rendering them less liable to be injured by the coldness and humidity to which they are exposed, that whatever doubts may exist of the expediency of the practice in the case of other mountain breeds, experience shows its importance in the case of this one all over the stormy countries which it inhabits.

This breed does not seem to amalgamate very readily with other races, so that crossing has not generally been successful as a means of permanent improvement. It has been frequently crossed by the Cheviot, but the descendants have been found inferior in weight, form, and quality of wool, to the pure Cheviots, and to the Black-faced Heath Breed in hardiness and aptitude to thrive in an upland country of heaths. But as it is not always deemed safe to change a stock of Sheep habituated to their locality, the practice of a continued crossing with the Cheviot until the flock has acquired the characters of the latter, has been sometimes adopted, so that the original Black-faced stock has become in time almost Cheviot. Another species of crossing has been remarkably successful, namely, the employing of males of the Leicester or Southdown for a first cross. The lambs, the result of this mixture, are excellent, rising to a much greater weight than those of the pure Black-faced blood. Great numbers of this mixed race are now produced, and an increased source of profit is thus opened to breeders by the sale of their young Sheep. Of these crosses, the best has been found to be with the Leicesters. That with the Southdowns produces very handsome Sheep, having perfectly black faces and legs, and a close good fleece; but they scarcely attain the size of the Leicester crosses, and the latter accordingly are preferred, for the special purpose for which this species of breeding is designed.

Seeing the large tract of country which is occupied by this breed, it is of great importance to improve it to the degree to which it is susceptible. This, as in other cases, may be done by due selection of the breeding parents, and by rearing the animals under circumstances favourable to the full development of their forms. By adopting this practice, we have in every case the means of improving a breed of Sheep. Adequate nourishment is essential to the enlargement of size; and all the properties of form, which consist with the character of the race, may be communicated and rendered permanent by a due attention to breeding. The wool of this breed being of small comparative value, the attention of improvers may be mainly directed to the carcass. By attending to the roundness of the trunk and breadth of the chest, we not only produce animals which more readily fatten, but

THE BLACK-FACED HEATH BREED.

which are more hardy; for in the case of all breeds, it is found that narrow-chested and flat-sided animals are less vigorous, and more subject to diseases, than such as have the body round and the chest wide.

It is painful, however, to state, that this breed, so widely diffused, has been treated with comparative neglect. Various breeders have distinguished themselves by their attention to the form of the animals, and have reaped the reward in the superior character of their stock; but over the wide tract of country which the breed occupies, it is far inferior in economical value to that to which, by due attention, it might arrive. Breeders would find it for their interest to procure rams from the southern counties of Scotland, and from the stocks of the breeders whose farms are good, and who have paid the most attention to the character of their stock.

The Black-faced Heath Breed, after having displaced the former races of a large tract of country, has itself, in the natural course of improvement, been giving way to another mountain breed of different characters. This is the breed of the Cheviot Mountains, likewise derived from a high and stormy country, but reared under circumstances more favourable with respect to the supplies of food, possessing fine and not coarse wool, and cultivated with greater attention on the breeding farms. But the hardier Heath Breed is still the more suitable to a great extent of country, where the prevalent herbage is heath, and still therefore merits the careful attention of a numerous class of breeders.

Drawn by W. Nicholson, R.S.A. from a Painting by Mr Shiels, R.S.A.

Drawn on Stone & Printed by Forrest.

THE CHEVIOT BREED.

Ewe bred by Mr Thomson, Attonburn, County of Roxburgh.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF ANIMALS.

Published October 1840 by Longman, Orme, Brown, Green & Longmans Paternoster Row London.

THE CHEVIOT BREED.

PLATE VIII.

EWE, Bred by Mr THOMSON, Attonburn, County of Roxburgh.

The Cheviot Breed of Sheep is derived from a district of trap, situated in the north of Northumberland, and extending into Scotland, forming the mountains termed Cheviot. These mountains are in contact with the rugged country of heath, which has been seen to be the habitat of the Black-faced Breed; but the true trap district is limited in extent, and differs greatly in its character from the heathy wastes adjoining. It is composed of a range of beautiful mountains tending to the conical, and mostly covered with grasses, ferns, wild thyme, and other plants distinctive of trap, often to the very summit. They are frequently in contact at their bases, or separated from one another by narrow valleys. While they pass on one side into the district of heaths, they are connected on the other with a rich cultivated country. Their highest summit is 2658 feet above the level of the sea, and they are frequently capped with snow long after it has disappeared from the lower grounds.

This district has produced from time immemorial a race of Sheep entirely distinct in its characters from the Wild Heath Breed of the elevated moors adjoining. The Cheviot Sheep are destitute of horns in the male and female: their faces and legs are white, exceptions merely occurring in the case of individuals in which these parts are dun. The body is very closely covered with wool, which is short and sufficiently fine for the making of certain cloths. The two-shear wethers, when fat, may weigh, on a medium, from sixteen to eighteen pounds the quarter, though with great differences, dependent on the natural productiveness of the pastures, and the method of treatment when young. The ewes are usually reckoned to weigh from twelve to fourteen pounds the quarter. The mutton is very good, though inferior in delicacy to that of the Southdown and Welsh Sheep, and in flavour to that of the Black-faced Heath Breed. The natural form of the Sheep is, like that of all mountain breeds, with a light fore-quarter; but this character is removed by the effects of breeding, and the modern Cheviots are of good form. The body is somewhat longer than is usually the case with the Heath Breed, which has given rise to the popular distinction, in districts where both breeds are cultivated, of long and short Sheep. They are larger in the lower countries, where a supply of turnips can be given: they are lighter in the more elevated tracts, where artificial food is scanty, or wanting. The breeders adopt the kind of animal which is suited to the pastures, preferring a short-legged larger Sheep for the lower farms, and one of lighter and more agile form for the more upland and colder. The Cheviot Sheep are of quiet habits, possessing, indeed, the independence of a mountain race, but having none of the indocility which distinguishes some other races. They are exceedingly hardy, their close covering of fine wool enabling them to resist the extremes of cold. They feed more on the grasses, and less on the shoots of heath, than the Black-faced Breed, and hence they are less adapted to a country of entire heath, and require a larger range of pastures to support an equal number of animals.

The Cheviot Sheep have spread from their native mountains to a large extent of country. They now cover a great part of the elevated moors from which the Black-faced Heath Sheep were derived. They have spread over the southern Highlands of Scotland, supplanting to a great extent the Heath Breed, which previously existed. They have been carried beyond the Grampians to the extreme north of Scotland, where they are reared in increasing numbers. To the late Sir JOHN SINCLAIR is due the honour of having first carried them to the county of Caithness. But in some cases they have been placed in situations to which the coarser Heath Breed would have been better adapted, and many farmers, after experience of the effect, have reverted to the ancient race. The breed, however, has a greatly more extensive range than has yet been assigned to it; for it is evident that the Cheviot, like every breed of Sheep, has the property of adapting itself to the country in which it is naturalized. Thus the Sheep which are reared in the north of Scotland must give birth to a hardier race than is produced in the lower mountains of the south; and thus we may expect to see the range of the breed gradually extended, and narrowing the bounds occupied by the coarser Black-faced. The extension that has already taken place of this hardy breed, must be regarded as having been of singular benefit to breeders and the country. It has been recently carried to the west of England and Wales, and has every where been found suited to a cold and mountainous country. In its native country of the Cheviot Hills, it has been cultivated with great care by a class of breeders inferior to none in the kingdom for intelligence and enterprise; and thus from every part of the kingdom breeders have the power of resorting to the native districts of the breed for the means of maintaining their stocks in a state of purity.

THE CHEVIOT BREED.

The wool of this breed weighs about three and a half pounds the fleece. It formerly used to be employed for the making of cloths; but from the extensive employment of the merino wool of Saxony and Spain, it is now scarcely employed for this purpose, and is prepared by the process of combing in place of carding, for the coarser manufactures. The attention of breeders, too, having been mainly directed to the fattening properties of the animal, the wool has diminished in fineness, though it has increased in length and weight. Its quality varies somewhat with the pastures, being finer where the shorter grasses prevail, and coarser where the herbage is rough and heathy.

The management of the Cheviot resembles that of the Black-faced Heath Sheep; but as, for the most part, they occupy a lower range of mountains, better means exist of supplying them with food during the inclement season of winter.

They are suffered to range over the grounds assigned to them, and their artificial food is only subsidiary to the natural herbage of the farm. It is supplied chiefly during falls of snow, and consists either of the hay of the cultivated grasses or clovers, where this can be obtained, or is the produce of the swamps and perennial meadows of the farm. When turnips can be produced, these likewise are supplied at the fitting times. The breeder of these Sheep, as in the case of the Black-faced Heath Breed, is not necessarily the person who feeds them for ultimate use. He rears them to a certain age, and then transfers them to those whose farms enable them to bring them to the required maturity. This constitutes the great traffic between the farmers of the higher and lower country, and is a fitting division of labour and employment. Sometimes, indeed, the breeder of these Sheep, by possessing low and cultivated ground, or otherwise, is enabled to combine the practices of rearing and fattening, but the essential destination of the higher farms is the rearing and not the fattening of stock; and the two occupations, though they may be combined, are essentially distinct. The stock often passes through several intervening graziers and feeders, before it is fattened for ultimate use. In general, the Cheviot Sheep are fattened at an earlier age than the Black-faced Heath Sheep, partly on account of the greater precocity of the animals, but chiefly on account of the superior treatment which they receive when young. The Cheviot breeder may sell his Sheep in the first year when hoggets, but very generally in the second year, either when they retain their fleece and are still hoggets, or after they are divested of their fleece, and are shearlings, or, in the language of the northern farmer, dinmonts and gimmers. They are rarely fattened when shearlings; the usual period is after they have lost their second fleece, and are wethers. The ewes, after having borne lambs for several years, generally three, are sold, and their place supplied by the younger females reared on the farm, which at that time are in the autumn of their second year, and about nineteen months old.

The rams are usually admitted to the ewes about the 20th of November, so that the season of lambing may commence in the early part of April. One ram is assigned to sixty ewes.

The ewes, during the period of gestation, feed on the natural pastures of the farm, but on the falling of heavy snows receive a supply of hay, which may be spread upon the surface. But the Sheep have a wonderful faculty of collecting their food, even when all the ground is covered, by scraping away the snow with their feet, and they prefer this natural food to the dried provender. When turnips as well as hay are produced, the ewes may receive them likewise during falls of snow, but it is especially at the period of lambing, and during its continuance, that this species of food is supplied.

When the period of lambing arrives, all the vigilance of the shepherds is required. Sometimes the ewes are so enfeebled by want of food and the inclemency of the weather, that they have not milk sufficient to nourish their young, and then the maternal feeling seems to become extinct. But this latter accident is of partial occurrence, and it is rare that the mothers altogether abandon their young. Sometimes the lambs at their birth are so weak that they cannot rise from the ground, and thus perish. In such cases the shepherd is at hand to assist the young to the teat, and often he takes the ewe with her young to a place of shelter, where they can be more carefully tended. When a ewe dies, and it is wished to give her lamb to one that has lost her own young, or when a ewe has twins, and it is wished to give one of them to be suckled by another whose own lamb has perished, some art is often required to induce the ewe to adopt the stranger. The most common method is to confine them together to a narrow dark space, holding the lamb to the teat until it has been suckled. In certain cases, when the lamb of any ewe has perished, its skin is taken off and put on the lamb to be adopted. The ewe, deceived by the smell of her own offspring, suffers herself to be sucked, and from that time forward adopts the little orphan, and treats it with all the kindness of the natural parent. It is of painful interest to see a ewe whose lamb has perished mourning over its little one, and refusing to leave it or be comforted. If the dead body is dragged along the ground, the poor mother will follow it even into the cot of the shepherd, fiercely driving away the dogs or sheep that approach it. Even when the ewes themselves are in the agonies of death, they will be seen calling piteously to their young ones, and offering them the last store of milk with which Nature has furnished them. When the ewes have twins, and thus have two lambs to nurse, it is well to give them a more liberal supply of food. It is convenient to have an enclosure of early grass near the place of lambing or the shepherd's cottage, to which ewes with twins, such as have too little milk, and

such as are sick and infirm, or from any cause require more careful attendance than the rest of the flock, may be taken. Though various ewes produce twins, it is regarded as a favourable circumstance in the case of this class of Sheep, when one lamb can be reared for each ewe of the flock. It is well when eighteen or nineteen lambs can be brought up for every twenty ewes.

The time of shearing these Sheep is from the middle of June to the beginning of July. The precise period is denoted by the wool being fully grown, and separating readily from the skin when pulled. The Sheep are first to be washed, which is done by men standing in the pool, and washing each Sheep separately, or more generally, when the flock is large, by causing them to swim two or three times through the water to the opposite bank. After being washed, they are kept as much as possible on ground where they can be prevented from rubbing on banks, or otherwise soiling their wool. In two days, if there be no rain, they may be shorn, but it is better to wait seven or eight days, in which case the unctuous secretion which protects the wool has again been formed. As soon as each Sheep is shorn, it is usually marked with a stamp dipped in boiling tar thickened with pitch. The mark is made on different parts of the body, as the near shoulder, the far shoulder, the near haunch, the far haunch, so that the different kinds and ages of the Sheep may be known at a glance.

Soon after shearing, the lambs are weaned, which is simply effected by a short separation of them from the dams. The lambs are now, in the language of farmers, hoggets or hogs, under the respective denominations of tup-hogs, wether-hogs, and ewe-hogs. The tup-hogs intended for use upon the farm or sale, and such of the ewe-hogs as are designed for receiving the male in the following year, are retained. The remainder of the ewe-hogs, and all the wether-hogs, are either now disposed of, or kept throughout the winter and sold in the following year, either, as has been observed, previous to the period of shearing, when they are still hogs, or after having lost their fleece, when they are dinmonts and gimmers. Sometimes they are kept until they have yielded a second fleece. All the old ewes which have borne the required number of lambs are disposed of before winter, and not only such ewes as are old, but such as are of bad form, or which it is wished for any cause to get rid of. The hogs which are retained are treated in the same manner as the breeding ewes, except that it is common to put them on some grassy and sheltered part of the farm where they can be best pastured. They receive hay in falls of snow, and, if possible, turnips are supplied to them during the whole winter, which may be done at the rate of a cart-load per day for every seven or eight scores.

The practice of smearing the skins before winter with tar, was formerly in more general use in the case of this breed of Sheep than it has since become. It is now chiefly confined to the more elevated districts, or the more northern counties. The disuse of the practice has arisen, not on account of any experience of its inefficiency as a preservative to the health of the animals, but on account of the injury to the quality of the wool, occasioned by the tarry ingredient. On this account, substitutes for the tar are now very generally employed. These are, olive oil mixed with turpentine, impure naphtha, commonly called spirits of tar, or other substances, which serve the purpose of destroying vermin and removing cutaneous affections, but which are scarcely so efficient as a means of preserving health as the old mixture.

In the modern management of these Sheep, a principle observed is to suffer them as much as possible to pasture undisturbed. On this account, the dividing of the stock of the farm into a number of flocks or hirsels, to each of which is assigned a certain range of pasturage, is much less used than formerly. The practice of folding Sheep at night, for the purpose of manuring parts of the farm, is now abandoned by all who are conversant with the proper management of this kind of Sheep. The practice, too, of milking the ewes for several weeks after the lambs are weaned, is now very much given up, experience showing that the exhaustion and disturbance of ewes render them less fitted to withstand the privations and severities of winter, and to nourish their young when the season of parturition arrives. It is proper, however, in all cases to milk the ewes after weaning for a few days, so as to run them dry by degrees. In cases where the practice of milking for several weeks is adopted, the milk is churned for the use of the farm; and twenty ewes will yield five pounds of butter in the week.

The number of Sheep assigned to the care of one shepherd is from 400 to 500. When the flock consists wholly of ewes, this number is as much as one man can conveniently manage, but when the flock consists of hoggets and shearlings, one shepherd may manage 700 or 800. An average allowance for one shepherd is 400 ewes and 200 hogs.

To the shepherd of these mountainous countries the services of the Dog are indispensable. Without this faithful creature, his individual labour would be insufficient to collect the animals from distant parts, drive them in flocks, or perform the other innumerable services required. The breed of Dogs used in the mountains of Cheviot, and the pastoral districts of Scotland, is of small size and homely exterior, but adapted in an eminent degree to the services to be performed. For sagacity and fidelity these humble Dogs cannot be surpassed; they understand the language of their master, and almost seem to divine his thoughts. Their whole habits seem fashioned to the life they lead. When taken from their natural pursuits, their spirit seems to droop, or at least they never manifest in other situations that matchless sagacity which distinguishes them in the occupations of the shepherd life.

The entire management of these and the other mountain Sheep of the northern parts of Britain, has no parallel, it is believed,

THE CHEVIOT BREED.

in the same latitudes in Europe. In no other country, similarly situated with respect to climate, are the Sheep kept so entirely exposed to the inclemencies of the weather, without the shelter of pens and houses. The absence of Wolves is the cause of that freedom which is allowed to these mountain flocks, and the shepherds have been taught by experience, that the animals may be exposed by night as well as by day without harm. Were these Sheep managed as in other parts of the Continent of Europe, penned and fed in houses, and prevented from taking their natural food, the mountains of the country could not maintain one-fifth part of the present numbers.

The great desiderata in the elevated countries of these mountain Sheep, are the supply of food and shelter in winter. The essential food at this season is hay. When there exists no land capable of yielding hay, a field or two should be formed, one of which should be mown annually. Rough boggy ground, producing the rushes proper to the situation, as the sharp-flowered jointed rush or sprit, is suited for yielding a kind of hay, which, though coarse and comparatively innutritious, will be eaten by the Sheep in the absence of other food. Where irrigation is practicable, watered meadows should be constructed, as affording the cheapest and securest means of supplying provender in these elevated countries. In all cases a quantity of hay should be provided equal to three months' consumption, at the rate of one and a half pound per day to the breeding ewes, and one pound to the younger sheep. When whins grow naturally, they should be preserved with care, as affording not only food but shelter.

When the pastures consist of rough heath, it is common to burn it at intervals of several years, in the early part of spring. This, destroying the more shrubby stems, produces an increased growth of the more tender shoots.

Draining is very important in the countries occupied by these Sheep. The drains are narrow open trenches, a spade's breadth in width. They are carried along the flat marshy grounds, or along the declivities of hills, wherever water may stagnate. They are designed to allow a speedy egress to water on the surface, and the effect is to improve the pastures, and lessen the tendency to the dangerous malady of rot.

When land exists capable of cultivation, the resources of food may be greatly extended, for then turnips as well as hay can be supplied. But an error, too common in such districts, should be avoided, of ploughing more land than is required for the ends proposed. The purpose of tillage in such situations is the raising of turnips and clover hay for the supply of the stock, and this end being attained, the farmer ought never to carry his system of tillage further on a breeding farm.

In order that the Sheep of these farms may pasture without disturbance, and that the labour of the shepherds may be abridged, it is highly useful that each farm be enclosed. The suitable fence for such situations is the stone wall, for the forming of which ample materials are for the most to be found on the grounds. This species of wall is formed of stones without the aid of lime, and may be from four and a half to five feet in height. Sods are sometimes used in place of stones; but the fences are greatly less permanent and useful, and ought never to be formed where better materials exist. Besides the general fence of the farm, it is proper or necessary that at least two lesser subdivisions or fields be formed, generally adjoining the farm buildings; and in all cases where a part of the land is kept in cultivation, it should be separated by sufficient fences from the pasture grounds.

The uses and value of shelter in countries so elevated and exposed will be apparent. When natural valleys and glens exist, these will be taken advantage of to shelter the flock from the piercing storms of the inclement season. In such cases, the shepherd will himself drive his flock to the places which afford shelter, and the Sheep of their own accord will betake themselves to the natural coverts of the farm. But though the instincts of the animals will cause them to avoid a coming tempest, by repairing to the lee sides of eminences for shelter, these are the very situations in which they may be overwhelmed by heavy falls of snow, which, when accompanied by winds, sometimes fill up all the hollows in a few hours. These accidents occasionally occur, and so sudden and violent is the storm, that whole flocks of Sheep are burried under masses of snow. Nay, sometimes the shepherds themselves, in their attempts to discover and save the scattered flocks, are bewildered and suffocated in the tempest.

It is of high importance, then, not only to provide shelter against the piercing blasts of these elevated countries, but to afford places of refuge to the stock in cases of danger. Plantations are always beneficial in these mountain farms, and when the means exist of rearing wood, may be formed with profit. They should be of the size of four or five acres, so that the trees may shelter one another, and formed with salient angles, so that the Sheep may have shelter from whatever point the wind may blow. They should be enclosed with high stone walls, so that the trees may be protected from the inroads of the Sheep. The wild pine and spruce are the best suited for the purpose, though the larch will grow in situations more elevated. But wood cannot always be cultivated in situations so bleak and exposed, and a simple substitute may be every where adopted. This is a small enclosure, termed a stell, capable of containing a flock of Sheep. It consists of a dry stone wall, six feet high, and is usually circular, with a narrow opening, and may be made of a size to contain 200 Sheep or more. Into these places of refuge the Sheep are driven when occasion requires. They are thus protected from danger, and a stack of hay being placed at the entrance, or within the

enclosure, they may be fed during the continuance of the snow. A sufficient number of these stells being placed in suitable situations, there will always exist places of security, to which the Sheep on different parts of the farm may be promptly conveyed.

No words can convey to those who have never witnessed the scene, an idea of the terrible effect of the winter storms which ravage these alpine regions. In an amusing series of Tales, by JAMES HOGG, commonly known as the Etterick Shepherd, graphic descriptions are given of the scenes of desolation which sometimes present themselves, and of which the memory survives from generation to generation in the traditionary annals of the shepherds. Of one of these, familiarly termed the Thirteen Drifty Days, he thus speaks from tradition :—

" It is said that for thirteen days and nights the snow-drift never once abated: the ground was covered with frozen snow when it commenced, and during all the time of its continuance the Sheep never broke their fast. The cold was intense to a degree never before remembered; and about the fifth and sixth days of the storm, the young Sheep began to fall into a sleepy and torpid state, and all that were so affected in the evening died over-night. The intensity of the frost-wind often cut them off when in that state quite instantaneously. About the ninth and tenth days, the shepherds began to build up huge semicircular walls of their dead, in order to afford some shelter for the living remainder; but such shelter availed little, for about the same time the want of food began to be felt so severely that they were frequently seen tearing one another's wool with their teeth. When the storm abated, on the fourteenth day from its commencement, there was on many a high-lying farm not a living sheep to be seen. Large misshapen walls of dead, surrounding a small prostrate flock likewise all dead, and frozen stiff in their lairs, were all that remained to the forlorn shepherd and his master; and though on low-lying farms, where the snow was not so hard before the tempest began, numbers of sheep weathered the storm, yet their constitutions received such a shock, that the greater part of them perished afterwards; and the final consequence was, that about nine-tenths of all the sheep in the south of Scotland were destroyed. In the extensive pastoral district of Eskdale-muir, which maintains upwards of 20,000 sheep, it is said none were left alive, but forty young wethers on one farm, and five old ewes on another. The farm of Phaup remained without a stock and without a tenant for twenty years after the storm; and when at length one very honest and liberal-minded man ventured to take a lease of it, it was at the annual rent of 'a great coat and a pair of hose!' It is now rented at L.500. An extensive glen in Tweedsmuir, now belonging to Sir James Montgomery of Stanhope, became a common at that time, to which any man drove his flocks that pleased, and it continued so for nearly a century."

He continues: " The years 1709, 1740, and 1772, were likewise all years notable for severity, and for the losses sustained among the flocks of sheep. In the latter, the snow lay from the middle of December until the middle of April, and was all that time hard frozen. Partial thaws always kept the farmer's hopes of relief alive, and thus prevented him from removing his sheep to a lower situation, till at length they grew so weak that they could not be removed. There has not been such a general loss in the days of any man living as in that year."

" But of all the storms that ever Scotland witnessed, or I hope ever will again behold, there is none of them that can once be compared with that of the memorable night between Friday the 24th and Saturday the 25th of January 1794. This storm fell with peculiar violence on that division of the South of Scotland that lies between Crawford-muir and the Border. In these bounds seventeen shepherds perished, and upwards of thirty were carried home insensible, who afterwards recovered. The number of sheep that were lost far outwent any possibility of calculation. Whole flocks were overwhelmed with snow, and no one ever knew where they were till the snow was dissolved, and they were all found dead. I myself witnessed one particular instance of this, on the farm of Thickside: there were twelve scores of excellent ewes, all one age, that were missing all the time that the snow lay, which was only a week, and no traces of them could be found; when the snow went away, they were discovered all lying dead, with their heads one way, as if a flock of sheep had dropped dead going from the washing. Many hundreds were driven into waters, burns, and lakes, by the violence of the storm, where they were buried or frozen up, and these the flood carried away, so that they were never seen or found by the owners at all. The greater part of the rivers on which the storm was most deadly, run into the Solway Frith, on which there is a place called the Beds of Esk, where the tide throws out, and leaves whatever is carried into it by the rivers. When the flood after the storm subsided, there were found on that place, and the shores adjacent, one thousand eight hundred and forty sheep, nine black cattle, three horses, two men, one woman, forty-five dogs, and one hundred and eighty hares, besides a number of meaner animals."

After describing his return from a distant excursion through the mountains, and certain presages of a coming storm, he continues:

" I then went to my bed in the byre-loft, where I slept with a neighbour shepherd, named BORTHWICK; but though fatigued with walking through the snow, I could not close an eye, so that I heard the first burst of the storm, which commenced between one and two, with a fury that no one can conceive who does not remember it. Besides, the place where I lived being exposed to

THE CHEVIOT BREED.

two or three 'gathered winds,' as they are called by shepherds, the storm raged there with redoubled fury. It began all at once, with such a tremendous roar, that I imagined it was a peal of thunder, until I felt the house trembling to its foundation. In a few minutes I thrust my naked arm through a hole in the roof, in order, if possible, to ascertain what was going on without, for not a ray of light could I see. I could not then, nor can I yet, express my astonishment: so completely was the air overloaded with falling and driving snow, that, but for the force of the wind, I felt as if I had thrust my arm into a wreath of snow. I deemed it a judgment sent from Heaven upon us, and went to bed again, trembling with agitation." "I kept my bed for about three quarters of an hour longer; and then rose, and on reaching the house with much difficulty, found our master, the ploughman, BORTHWICK, and the two servant maids, sitting round the kitchen fire, with looks of dismay, I may almost say despair. We all agreed at once, that the sooner we were able to reach the sheep, the better chance we had to save a remnant; and as there were eight hundred excellent ewes, all in one lot, but a long way distant, and the most valuable lot of any on the farm, we resolved to make a bold effort to reach them. Our master made family worship, a duty he never neglected; but that morning the manner in which he expressed our trust and confidence in Heaven was particularly affecting. We took our breakfast—filled our pockets with bread and cheese—sewed our plaids around us—tied down our hats with napkins coming below our chins—and each taking a strong staff in his hand, we set out on the attempt.

"No sooner was the door closed behind us than we lost sight of each other: seeing there was none—it was impossible for a man to see his hand held up before him—and it was still two hours till day. We had no means of keeping together but by following to one another's voices, nor of working our way save by groping before us with our staves. It soon appeared to me a hopeless concern, for, ere ever we got clear of the houses and hay-stacks, we had to roll ourselves over two or three wreaths which it was impossible to wade through; and all the while the wind and drift were so violent, that every three or four minutes we were obliged to hold our faces down between our knees to recover our breath. We soon got into an eddying wind that was altogether insufferable, and, at the same time, we were struggling among snow so deep, that our progress in the way we proposed going was very equivocal indeed, for we had by this time lost all idea of east, west, north, or south. Still we were as busy as men determined on an enterprise of moment could be, and persevered on we knew not whither, sometimes rolling over the snow, and sometimes weltering in it up to the chin. The following instance of our successful exertions marks our progress to a tittle: There was an enclosure around the house to the westward, which we denominated 'the Park,' as was customary in Scotland at that period, and in that quarter, where a farm seldom boasted more than one enclosed piece of ground. When we went away we calculated that it was two hours until day; the park did not extend above three hundred yards; and we were still engaged in it when day-light appeared. When we got free of the park, we also got free of the eddy of the wind. It was now straight in our faces; we went in a line before each other, and changed places every three or four minutes, and at length, after great fatigue, reached a long ridge of a hill where the snow was thinner, having been blown off by the force of the wind, and by this we had hopes of reaching within a short space of the ewes, which were still a mile and a half distant. Our master had taken the lead; I was next him, and soon began to suspect, from the depth of the snow, that he was leading us quite wrong; but as we always trusted implicitly to the person that was foremost for the time, I said nothing for a good while, until satisfied that we were going in a direction very nearly right opposite to that we intended. I then tried to expostulate with him; but he did not seem to understand what I said; and, on getting a glimpse of his countenance, I perceived that it was quite altered. Not to alarm the others, nor even himself, I said I was becoming terribly fatigued, and proposed that we should lean on the snow and take each a little whisky (for I had brought a small bottle in my pocket for fear of the worst), and some bread and cheese. This was unanimously agreed to, and I noted that he swallowed the spirits rather eagerly, a thing not usual with him, and when he tried to eat, it was long before he could eat any thing. I was convinced that he would fail altogether, but, as it would have been easier to have got him to the shepherd's house, which was before us, than home again, I made no proposal for him to return. On the contrary, I said, if they would trust themselves entirely to me, I would engage to lead them to the ewes without going a foot out of the way. The other two agreed to this, and acknowledged that they knew not where they were; but he never opened his mouth, nor did he speak for two hours thereafter. It had only been a temporary exhaustion, however, for he afterwards recovered, and wrought till night as well as any of us; though he never could recollect a single circumstance that occurred during that part of our way, nor a word that was said nor of having got any refreshment whatever. At about half an hour past ten we reached the flock, and just in time to save them."

Again: "It was now wearing towards mid-day, and there were occasionally short intervals in which we could see round us for perhaps a score of yards; but we got only one momentary glance of the hills around us all that day. I grew quite impatient to be at my own charge, and leaving the rest I went away to them by myself, that is, I went to the division that was left far out on the hills, while our master and the ploughman volunteered to rescue those that were down on the lower ground. I found mine in

miserable circumstances, but making all possible exertion, I got out about one-half of them, which I left in a place of safety, and made towards home, for it was beginning to grow dark, and the storm was again raging in all its darkness and fury. I was not in the least afraid of losing my way, for I knew all the declivities of the hills so well, that I could have come home with my eyes bound up; and indeed, long ere I got home, they were of no use to me. I was terrified for the water (Douglas Burn), for in the morning it was flooded and gorged up with snow in a dreadful manner, and I judged that it would be now quite impassable. At length I came to a place where I thought the water should be, and fell a-boring and groping for it with my long staff. No: I could find no water, and began to dread that, in spite of my supposed accuracy, I had gone wrong. This greatly surprised me, and standing still to consider, I looked up towards Heaven, I shall not say for what cause, and to my utter amazement thought I beheld trees over my head, flourishing abroad over the whole sky. I never had seen such an optical delusion before; it was so like enchantment that I knew not what to think, but dreaded that some extraordinary thing was coming over me, and that I was deprived of my right senses. I concluded that the storm was a great judgment sent on us for our sins, and that this strange phantasy was connected with it, an illusion effected by evil spirits. I stood a good while in this painful trance; but at length, on making a bold exertion to escape from the fairy vision, I came all at once in contact with the Old Tower. Never in my life did I experience such a relief; I was not only all at once freed from the fairies, but from the dangers of the gorged river. I had come over it on some mountain of snow, I knew not how nor where, nor do I know to this day. So that, after all, what I had seen *were* trees, and trees of no great magnitude neither; but their appearance to my eyes it is impossible to describe. I thought they flourished abroad, not for miles, but for hundreds of miles, to the utmost verges of the visible heavens. Such a day and such a night may the eye of a shepherd never again behold!"

No apology, we trust, is due for extracting those passages. Had the author never written more than his account of the storms of Etterick, he would deserve to be remembered. Even if we shall imagine that a little fancy has been mixed with the reality of the story, we must feel that the shepherd boy had really mingled in the scenes which he lived to paint so well. One passage more is worthy of note. It refers to a faculty known to be possessed by the Dogs of these mountains, of discovering the Sheep which have been buried beneath the snow. We know that a similar instinct of the noble Dogs of St Bernard, is employed to discover the remains of the perished traveller.

"Next morning the sky was clear; but a cold intemperate wind still blew from the north. The face of the country was entirely altered. The form of every hill was changed, and new mountains leaned over every valley. All traces of burns, rivers, and lakes were obliterated." "When we came to the ground where the sheep should have been, there was not one of them above the snow. Here and there, at a great distance from each other, we could perceive the heads or horns of stragglers appearing; and these were easily got out: but when we had collected these few, we could find no more. They had been lying all abroad in a scattered state when the storm came on, and were covered over just as they had been lying. It was on a kind of sloping ground, that lay half beneath the wind, and the snow was uniformly from six to eight feet deep. Under this the hogs were lying scattered over at least one hundred acres of heathery ground. We went about boring with our long poles, and often did not find one hog in a quarter of an hour. But at length a white shaggy colly, named Sparkie, that belonged to the cowherd boy, seemed to have comprehended something of our perplexity, for we observed him plying and scraping in the snow with great violence, and always looking over his shoulder for us. On going to the spot, we found that he had marked straight above a sheep. From that he flew to another, and so on to another, as fast as we could dig them out, and ten times faster, for he sometimes had twenty or thirty holes marked beforehand."

Although these dreadful tempests occur but occasionally, bad seasons, that is, seasons in which the ground is covered for a long period with frozen snow, are common, and never fail to affect in a serious manner the health and condition of the flock. When they take place at the period of lambing, vast numbers of the young creatures perish, notwithstanding every care on the part of the shepherds.

The Cheviot Breed, naturalized in countries so cold and tempestuous, and spreading over so large a tract of country, must be seen to be of the highest economical importance. The attention of agriculturists in the district proper to the breed has been skilfully directed to its improvement. Superior feeding has had the effect of enlarging the size of the animals, and increasing the produce of wool; but the wool, as was before observed, has become less fine, and has almost ceased to be used in the manufacture of cloths. It has, therefore, become the interest of breeders to direct attention to the improvement of the form of the animals, holding the quality of the wool to be a secondary consideration. Nevertheless to this extent attention to the wool is proper: a fine and close fleece indicates constitutional hardiness in the individuals, and should therefore be carefully attended to as a character in the breeding parents.

THE CHEVIOT BREED.

The Cheviot Breed amalgamates readily with the Leicester; and a system of breeding has been extensively introduced for producing the first cross of this descent. The rams employed are of the pure Leicester breed; and the progeny is superior in size, weight of wool, and tendency to fatten, to the native Cheviot. The lambs of this descent are sometimes disposed of to the butcher, and sometimes fed until they are shearlings, when they can be rendered as fat as the parent Leicesters, and not much inferior in weight; and further, they can be raised to maturity under less favourable conditions of soil and herbage than the Leicester. The benefit, however, may be said to end with the first cross, and the progeny of this mixed descent is greatly inferior to the pure Leicester in form and fattening properties, and to the pure Cheviot in hardiness of constitution. The system is attended with considerable profit in many cases. The danger is, that it may insensibly produce a mixture of the Leicester blood on the breeding farms. Even this may answer peculiar situations; but there cannot be a question that, for general cultivation in the high and tempestuous countries to which the Cheviot breed is adapted, the race should be preserved in its native purity. Every mixture of stranger blood has been found to lessen that character of hardiness which is the distinguishing character of the race. The beautiful breed of Southdowns would seem to be of all others that which is best adapted to improve the Cheviot, and yet the experiments that have hitherto been made have shown that the mixed progeny is far inferior to the native Cheviot in its adaptation to a country of cold and humid mountains.

The Cheviot Breed, it has been seen, has been gradually extending throughout the mountainous parts of Scotland. It has penetrated southward in the part of the central chain of elevated moors from which the Heath Beeed has been derived. It might be yet greatly more extended in this direction, and supersede many of the flocks of ill-formed animals which inhabit this range. It has been carried to Wales, to the high lands of Dartmoor and Exmoor, and in small numbers into Cornwall. In all these cases it has been found superior to the native races. It has even been carried by settlers to the boundless wastes of New South Wales; but the suitable breed for that country, in which the wool alone is of value, is the Merino, although, as we shall afterwards have occasion to see, some of the Long-woolled Breeds may, with advantage, be transported to this magnificent Colony.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairland, 45, St. John's Square

THE OLD NORFOLK BREED.

Ewe, 3 Years old, the Property of Mr. Brown of Norton, descended from the flock of Mr. Turner of Creak: the Lamb, a cross with the Southdown.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published February, 1841 by [illegible]

THE OLD NORFOLK BREED.

PLATE IX.

EWE, Three Years Old, the property of THOMAS BROWN, Esq. of Norton, descended from the Flock of Mr TURNER of Creak: the Lamb a cross by the pure Southdown.

A remarkable variety of Sheep, usually termed the Old Norfolk Breed, occupies the higher lands of Norfolk, Suffolk, and Cambridge. These Sheep, once very numerous in the heathy districts of this part of England, are a wild and hardy race, well fitted for a country of scanty herbage. Both sexes are armed with horns, which, in the male, are thick and spiral. Their limbs are long and muscular; their bodies are long, and their general form betokens activity and strength. They, accordingly, have been regarded as well fitted for distant journeys and for bearing the rough treatment of the fold. They hold their necks erect, and, in their carriage, more resemble the Chamois Antelope than any other of our races of Sheep. Their faces and legs are covered with short black hair: their wool weighs from two and a half to four pounds the fleece, is fine and silky, and possesses sufficient felting properties to fit it for being made into second or livery cloths. It formerly brought a high relative price in the market; but in consequence of the increased use of the finer wools of Spain and Saxony in the manufacture of superior cloths, the wool of this, as of the numerous other breeds which formerly produced short or clothing wools, has declined in value.

These Sheep have much of the aspect of the Black-faced Heath Breed, but differ from that race in their longer body and limbs, and in the characters of the fleece; their wool not being harsh and wiry, as in the case of the Heath Breed, but soft, and suited for felting. The softness of their fleece gives them some affinity with the Southdowns; but they differ from that race in their robuster form, and in their bolder, wilder, and more restless habits. We must suppose that the characters of this breed have been acquired from peculiarities in the soil and climate of the district which it inhabits. This tract is calcareous, sandy, and naturally productive of heaths, with hard and wiry grasses. Being obliged to traverse extensive tracts to procure a sufficiency of food, the animals have become active and muscular; and the country they inhabit being somewhat elevated and exposed to dry easterly winds, they are furnished with a fleece sufficiently close to defend them from the chill breezes, without having that long coat of wool which is needed in situations more humid and mountainous. Inhabiting, too, a country in which chalk, and the detritus of chalk, exist, the wool has acquired that fineness which characterizes the other races acclimated in calcareous districts. This breed must be referred to the same general type as the Black-faced Heath Breed, and we may believe that the characters which distinguish it, are such as the Black-faced Heath Breed would itself, in the course of ages, assume in a lower country of chalk and heath.

These Sheep were greatly esteemed in the districts which produced them, and were spread over a large tract of country. Their mutton was and still is held in high estimation: they were valued by the butchers for producing a large proportion of internal fat, and by the farmers for their adaptation to the husbandry of the fold. They were long the prevailing breed of Norfolk and Suffolk; but as improvements extended, they became more confined to the higher grounds, and animals of more docile habits and superior fattening properties supplied their place in the cultivated country. Other causes, also, have contributed to lessen the numbers of this breed and limit its range. With the more improved races, these wilder sheep produce admirable first crosses, either for being killed as lambs, or when of an older age. The ewes prove excellent nurses, and give birth to a robust progeny; and no finer lambs are brought to the English markets than the first crosses between them and the Leicester or Southdown rams. This circumstance produces a gradual intermixture with the blood of other varieties, and a progressive diminution of the numbers of the pure race. To such a degree has this intermixture taken place, that the perfectly pure Norfolk breed is now becoming rare, and if breeders have not inducement afforded them to preserve it, it will soon cease to be found. It is to be observed, that the greater number of Sheep now brought to the markets of London under the name of Norfolks are crosses, or the offspring of crosses, especially with the Southdowns.

The Old Norfolk is thus sharing the fate of the various Forest and other older breeds of this country, by giving place to races of superior value with respect to the power of arriving at earlier maturity of muscle and fat. A certain feeling of regret may perhaps exist, that a race possessing many good properties should have been extinguished rather than improved. That the Old Norfolk was, like every other breed of Sheep, susceptible of an essential change of characters, cannot be doubted. While it might still have retained its property of hardiness and robustness, the too great length of the limbs, the flatness and lankness of the body, and, with the change of external form, the too great wildness of temper, might have been corrected, as in the case of

THE OLD NORFOLK BREED.

every other race of Sheep to which the care of the breeder has been directed. But few breeders appear to have thought the Norfolk so deserving of preservation and improvement, as to have deemed it necessary to apply to it those principles of breeding which have been successfully applied to other races. Very lately, indeed, the matter has occupied the attention of the possessors of the few unmixed flocks which remain; but unless these gentlemen are seconded by more extensive support than they have yet received, it is believed that this ancient race will, at no distant time, be merged in others which have acquired a higher value by the care of the breeder.

The breed which of all others has the most trenched upon the domains of the ancient Norfolk is the Southdown. This admirable breed has not only occupied districts formerly possessed by the Norfolk, but has been largely used to cross the latter; and experience has shown that these crosses are superior in form, though not in weight, to those of the Leicester. This is a conclusion which might have been drawn even without the aid of experience. The Southdowns, which are a short-woolled race, and indigenous to a calcareous country, which is also the geological character of the country of the Norfolks, have a greater affinity with the Norfolks than the long-woolled Leicesters and Lincolns, and are therefore better suited to amalgamate with them. It has been seen, on the other hand, that the long-woolled Sheep of the plains are better fitted to unite with the Welsh, the Dartmoor, and Exmoor, than the fine-woolled Southdown; illustrating a principle of breeding too often disregarded, of bringing together animals which possess a certain community of characters.

As connected with the Heath Breeds of the country may here be mentioned one of remarkable characters termed the PENISTONE. This race inhabits a district of the coal formation on the confines of Yorkshire, Lancashire, and Derbyshire. It is found in the higher parts of this district, where a coarse heathy herbage prevails, occupying a limited tract of about twenty-six miles by twenty. On the slopes of the hills the older breed merges in the crosses that have been made, chiefly with the Leicester. The Sheep are termed Penistone, from the market-town of that name, lying a few miles to the south of Huddersfield in the West Riding of Yorkshire, and to which they are usually driven for sale.

These Sheep have wool of a medium length, of a silky appearance, but harsh and wiry, and weighing from four to five pounds the fleece. They have white faces and legs. The rams exceed the size of the ewes and wethers in an unusual degree, a peculiarity which is ascribed to their being taken to the lower country to be reared. The rams alone have horns, which are very large, lying close to the head, and projecting forward. A distinguishing character of this breed is an extreme coarseness of form, and especially of the extremities. The feet are large, the limbs bony, the shoulders heavy, the sides flat; but the most singular characteristic is the length and muscularity of the tail, in which respect the Penistone Sheep differ from all others in this country. This enlargement of the tail is merely muscular and bony, and not at all analogous to the growth of fat which takes place in the tails of certain Sheep of Eastern countries. The mutton of these Sheep is highly valued for its juiciness and flavour.

The Penistone is manifestly to be referred to the same general type as the Black-faced Heath Breed. It approaches to this race in the character of its wool, but differs from it in its clumsier and less agile form. The individuals are very large, but weigh the least perhaps in proportion to their offal and bulk of body, of any sheep of this country.

It may excite surprise that a breed possessing such characters should have maintained its place in the centre of England, in the vicinity of some of the most opulent towns, and on the borders of districts the most celebrated for their breeds of Sheep. The Penistone district is, however, of peculiar characters. It is high, yet yields a plentiful coarse herbage of heath and intermixed grasses. It is scarcely sufficiently fertile, or sufficiently improved, for the Leicesters, and is just such a district as would appear to be suited to support a coarse race of native Sheep. Farmers have found these animals to be hardy, and adapted to the country in which they are naturalized, and hence have been disposed to overlook their defects. Yet a gentle crossing with more improved breeds might have corrected their more palpable defects, without rendering them too fine for their situation. It may be expected, however, that this coarse unthrifty breed will disappear, either by the effects of crossing, or by the substitution of superior varieties. A breed which seems well suited for this district, at least so long as it remains in its present uncultivated state, is the Cheviot, which is calculated to thrive well in a country of heaths with intermixed grasses. Cheviot flocks have indeed been introduced into the Penistone district, but the farmers dislike them on account of their smallness of size, not considering that a greater number of these smaller sheep could be maintained, and would yield a larger produce of mutton with less of offal, on the same space of ground. The pure Southdowns would be out of place in these rugged pastures, which are not adapted to a race the natives of a country of short and fine herbage. Still more unsuitable are other breeds which have been employed to cross these coarse animals, as for example the Ryeland, one of the prettiest little breeds in the country, but differing in all its characters from the Penistone.

HISTORY.

more convex outline of the face. They more resemble the foal at the side of its dam than the more matured form of the Horse of Western Asia. They are very fleet, and patient of thirst and hunger. They have a high and graceful action, and present much of that peculiar motion which every one will understand who observes the movements of a foal, which, it is to be observed, is an exceedingly fleet animal in proportion to its strength and size. The race most characteristic of the African form is found in Nubia and the adjoining deserts. The district of Dongola, lying about 20° of north latitude, has been traversed by various travellers, and the horses have been described. They are mostly of a black colour, or black with white legs. They stand about sixteen hands high, and, contrary to the form of the Asiatic horse, their height is greater than their length from the neck backward. They are described by travellers as forming the most splendid cavalry in the world. BRUCE, who was a skilful horseman, speaks of them with admiration, and states that they are docile and full of spirit. BOSSMAN gives a similar testimony, extolling their beauty, their symmetry, and their docile and affectionate tempers. Some of them used to bring enormous prices at Cairo. They have now become common in that city, where they are to be seen ridden by persons who prefer their high and showy action to the more useful pace of the Arabian. There are several of them to be seen in the Pacha's stables, where they are described by a recent traveller as having a soft look, and as not at all conveying the idea of endurance and useful action; and this perfectly accords with the conclusion which we should draw from their external conformation. Yet it cannot but be regarded as remarkable, that a race of such tall and powerful horses should be produced in one of the most steril countries on the globe. The Arabian horse, in the same latitudes, scarce exceeds the size of a pony; which leads us to the conclusion that the African horse is distinct from the Asiatic, attaining his maximum of development, like the Negro race of mankind, under conditions of temperature and natural productions entirely different from those which favour the growth of the Asiatic species. How far this remarkable race of horses extends into the burning regions of the interior we are ignorant, on account of our imperfect knowledge of these countries. But we have reason to believe, from the notices of travellers, that the horses in the countries extending westward have the same character of lightness of body, and high and imposing action. Travellers who have visited Abyssinia, which, however, is a country of mountains, and therefore fitted to produce a smaller race of horses, speak of them as possessing the proud aspect and action of the horses of the Nubian deserts. BRUCE describes a favourite black horse which he himself rode, and with whose action and demeanour he expresses himself charmed. It is probable that the horses of Africa, as we depart from this centre, deviate from the parent type. Passing through the boundless countries of the Ethiopians to the south, the Horse seems at length to disappear; and towards the countries of the coast of Guinea, which differ greatly in their character from the Nubian deserts, he appears to be degenerated. But we learn that horses exist in vast numbers throughout all the interior, from the Red Sea to the Gulf of Benin, and that they are everywhere used for the purposes of war, of pomp, and of racing. But the horses of Africa, with which we are most familiar in Europe, and which have been largely mixed in blood with the horses of Southern Europe, and even of England, are those which inhabit the countries of Africa, north of the desert of Zahara. They are termed Barbs, and they inhabit the kingdoms of Fez, Morocco, and all the countries eastward to the deserts of Lybia bordering on Egypt.

The country of the Barbs approaching in its geographical situation to Europe, it may be supposed that the horses, like the human inhabitants, approach nearer in their characters to the European varieties. But this affinity has been increased by an admixture of races from early times. First, by means of the Phœnician colonies; second, by the long subjugation of the countries of the coast to the Republic and Empire of Rome; and thirdly, and far more extensively, by the conquests of the Arabs, who settled in great numbers in the country, and now form a large proportion of the inhabitants. Notwithstanding of this admixture, the character of the horses of Barbary indicates distinctly their African lineage. The are about fourteen and a half hands high. They are sufficiently deep at the girth, but tucked up in the belly, giving that peculiar greyhound aspect which is characteristic of this race. Their necks are long and well formed, their heads moderately fine, the chafron tending to the convex; their shoulders are oblique, and the withers thin and well raised. Their limbs, though long and delicate, are sinewy; their pasterns are oblique, and the feet well formed. They are gentle and full of spirit; they are somewhat careless in their paces, but distinguished by their graceful action. As compared with the Arabians, they are more swift, but less enduring, and their breeding and training have not been attended to with the same care. The Moors, though admirable horsemen, are harsh to their horses, as compared with the Arabians and Western Asiatics. They use tremendous bits, and the sharp edges of their stirrups serve the purpose of spurs. These countries were of old inhabited by the Mauritanians, the Numidians, the Gætulians, and other nations of horsemen. The horses were known and valued for their fleetness before the Asiatic horse had found its way across the Syrian wastes, and a thousand years and more before the warlike soldiers of the Prophet had issued from their native deserts. In the ages of the Roman empire, they were carried to Italy to give swiftness to the horses employed in the sports of the circus. They were mixed largely in blood with the horses of Sicily and Spain; and in a subsequent age they contributed to give its peculiar characters to the race-horse of England. The finest of the Barbary horses have been derived from the countries of the coast of Fez, Morocco,

HISTORY.

country appears to be eminently unfriendly to the health and growth of the animal. Those that are reared to the south of the countries stretching from Mecca to the Persian Gulf are stunted in their forms, and so few in number that there is scarce any inhabited country that contains so small a number of horses as the regions which some have supposed to be the cradle of the race.

When the united chiefs of the Wahabees attacked MEHEMET ALI at Bysset in the year 1815, there were only 500 horses in their whole army of 25,000 men; and when horses are found in the most fertile parts of South Arabia, they are reckoned a rarity, and are only in the possession of princes and people of rank. "In affirming," says the distinguished traveller BURCKHARDT, in a letter to Mr SEWELL, "that the aggregate number of horses in Arabia, as bordered by the Euphrates and Syria, amounts to about 50,000, I am confident I have not underrated them. The richest country in this part of the East appears to be Mesopotamia. The tribes of Kurds and Bedouins in that quarter very likely possess more horses than all the Arabian Bedouins put together; for the richness of their pastures easily propagates their studs. The best pasturing places of Arabia not only produce the greatest quantity of horses, but likewise the best and most choice breeds. The finest Koheyls of the Khomb are met with in Medgid on the Euphrates, and in the Syrian deserts; while in the southern parts of Arabia, and especially Zemba, no good breeds of horses exist but those imported from the north. In the tract between Mecca and Medina, between the mountains and the sea, a distance of at least 260 miles, I do not believe that 200 horses can be found; and the same proportion of numbers is to be remarked all along the Red Sea from Zemba up to Akaba." It is certain, then, that Arabia is a country remarkably poor in horses, and that, just as might be inferred from analogy, the best of the race are to be found in the countries where the climate is most temperate, and where a sufficient degree of food is produced. It is, however, in the remoter districts inland that the purest of the race exist, because the greatest attention is there paid to the rearing of them. It is usual to name the horses of the Bedouins of the interior desert, the Nedjed breed, from the desert of that name, extending from Medina eastwards; but very few horses are produced in the Nedjed itself. There is considerable difficulty in procuring the horses of even the inland tribes of the Syrian deserts, from the supposed hazard of confiding in the faith of the people, but in reality from the distrust which these wandering tribes entertain of the inhabitants of the towns. The intercourse, however, has become more considerable within the last thirty years, in consequence of which circumstance the pashas and other rich individuals in Syria have been enabled to supply their stables with Nedjeds; and from the same cause French, Russian, and Prussian agents have been able to procure many fine stallions of the races of the remoter Bedouins for their respective governments. In the year 1817, according to Mr BARKER, whose long residence at Aleppo gave him full opportunity of observing the growing intercourse of the Bedouins with the settled inhabitants, three very numerous tribes, who had never before beheld a Turkish minaret, pitched their tents within a few miles of Aleppo, bringing along with them at least 6000 horses. From these it was easy for Europeans residing in Syria to select a number of splendid stallions, but none of them, it is said, found their way to England.* But though the breeds of the interior may have been obtained with difficulty, a great number of horses are continually being exported from the northern parts of Arabia. The Turks of Asia Minor and Syria obtain considerable numbers; but the principal trade is to the East Indies, from Bussora on the Persian Gulf. The exportation is chiefly of stallions, the Arabs retaining the mares for breeding, and preferring them for the purposes of the saddle. The Arabs, we are assured, pay great attention to the purity of the descent of their horses, and have certain races of them which are deemed of noble blood. Contrary to the practice of Europe, they reckon their descent by the dam; but they never attempt to prove the genealogy of their horses except by tradition, and the beauty of their form. The pretended hujjis, or written attestations of descent produced by dealers in Arabian horses, are, we are assured, a trick either on the part of the Moslem jockeys or the Christian.

In contact with Arabia upon the east is Persia, a country of horsemen and soldiers from early times, in which we find the same form of the Horse distinctly exhibited. Persia is a country of much diversity of surface. It is very elevated, and possesses an atmosphere of great purity and dryness. Towards the south it presents much of the arid character of Arabia; towards the north it is productive of the grasses and other herbaceous plants, and retains its verdure for a great part of the year. In the northern provinces, accordingly, the horses are of greater size and more developed forms. Some of them near the Caspian Sea are as large as the horses of Normandy. Towards the south they resemble more the horses of Arabia, with which, besides, they are much mingled in blood: but they have not the same delicacy of figure, and are not so much valued in their own and other countries. They are fed sparingly, like all the horses of the same warm regions. The custom is to feed and water them at sunrise and sunset; and the ordinary provender is barley and chopped straw. They are kept clothed, and at night are piquetted in open yards, their hinder legs being confined by cords of twisted hair, fastened to rings with pegs driven into the ground. The same practice is described by XENOPHON as in use amongst the Persians more than 2000 years before. All persons of the least

* ST JOHN'S Egypt.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Haviland 45, St. Ann's Square

THE DORSET BREED.

1. Ram, rising 3 Years old, bred by Mr. Millar of Plush, near Dorchester. 2. Ewe, rising 3 Years old, from the same flock.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published February, 1841, by Longman, Orme, Brown, Green & Longmans, Paternoster Row London.

THE OLD WILTSHIRE BREED.

PLATE X.

1. RAM, bred by Mr TURNER, near Hindon, Wiltshire.
2. EWE, from the same Stock.

The Old Wiltshire was a race of Sheep which extended over the greater part of the county of Wilts. They were the largest of the fine-woolled sheep of England. Their heads were clumsy, and the outline of the face remarkably arched. They had horns in the male and female: their legs and faces were white, their wool was very fine, weighing about two and a half pounds the fleece: their mutton was of tolerable quality, and the wethers, although they fattened slowly, arrived at a good size.

This breed was long regarded as well adapted to the situations in which it was reared: its wool was in great request, and large numbers of the fattened Sheep were driven to the London markets. The breed may be said to be now nearly extinct in the pure state, scattered remnants of it only existing. It has been entirely superseded by the Southdown breed, which has either been directly substituted for it, or been made to cross it, until its distinctive characters have been lost. The vexation was very great of the older farmers of Wilts on marking the progress of the Southdowns, and the gradual disappearance of the race which they had been taught to regard as the best in the kingdom. Some of them declared that there would not be a pile of grass in the county if these little black-faced Southdowns were allowed to take the place of the fine tall Wiltshire.

The figure of the Old Wiltshire affords an exemplification of almost every external character which the breeder wishes to avoid. The large coarse head, the flat sides, and the length and thickness of the limbs, are very remarkable; and by comparing these points with the conformation of the beautiful race which is now reared in the same district, we have an instructive lesson on the proper form of Sheep, and on the changes which the care of the breeder can effect. The Old Wiltshire, however, had become adapted, in a remarkable degree, to the conditions, both natural and artificial, under which it was reared. The animals lived in a country of chalky hills, inland, and not exposed to severities of temperature, but unshaded from the sun's rays: the herbage being scanty, they had to move to considerable distances to collect their food, and the practice, from time immemorial, had been established, of driving them great distances to and from the fold. To these circumstances was adapted an animal having a light fleece, with strong muscular limbs, and with the habitude of subsisting on scanty herbage. Its fleece was not only light, beyond that of any other Sheep in this country, but its belly was destitute of wool, a character which would not have existed but in the case of a warm dry soil, where the animal did not require a coat of wool between his belly and the humid earth. The animal, however, which had acquired these properties was eminently deficient in others which are sought for in the more improved state of the Sheep. Subsisting on scanty dry food, he had acquired the habitude of fattening slowly; and the Old Wiltshire, though greatly valued by the butchers, was one of the most difficult to be fattened of the larger Sheep of England. There cannot exist a doubt of the great benefit which accrues to individuals and the country by the substitution of the Southdowns for this coarse uncultivated race. It may be asked, Could not the Wiltshire Sheep have been improved, the faults of their form corrected, their size preserved, and the fineness of their fleece maintained? Beyond a question all these purposes could have been effected by the care of breeders, directed for a sufficient period to the improvement of the animal. But these are labours which would have required a generation at least, and the interests of breeders were better served by taking that which was formed to their hands, than by waiting the slow improvement of a race so radically defective.

The figures in the Plate represent the ancient Wiltshire Breed unmixed with any other blood, and afford, perhaps, the last record that will be presented to the public of a breed once so esteemed and celebrated. The individuals represented form part of a flock on an estate in the county of Wilts, bequeathed and held on the singular condition that the proprietor should maintain a flock of the pure Old Wiltshire Sheep. The former owner adopted this expedient for perpetuating the existence of his favourite breed.

The Wiltshire Breed may be regarded as the type of some others which inhabited a portion of the midland chalk counties of England until a recent period. The Old Hampshire may be referred to this group. They were horned, had the faces and

THE OLD WILTSHIRE BREED.

legs white, though in some cases speckled, long limbs, and lank bodies. This race has been supplanted by the Southdown, or so crossed with it as to have lost its original characters. The ancient sheep of the adjoining county of Berks were of two kinds. One had horns and the other was polled. Both were coarse slowly-fattening animals, tall and muscular, with an arched chaffron. Their wool was short, and fitted for felting. These breeds have been universally crossed with the Southdown, and may be said to be nearly extinct in the pure state. Besides, few sheep are now reared in the county of Berks, the farmers of which derive their Sheep for fattening from other districts.

Drawn by Mr Nicholson, R.S.A. from a Painting by Mr Shiels, R.S.A.

Drawn on Stone & Printed by Fairland 45, St John's Sq.

THE OLD WILTSHIRE BREED.

1. Ram, bred by Mr Turner, near Hindon, Wiltshire. 2. Ewe, from the same flock.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published February, 1841, by Longman, Orme, Brown, Green & Longmans, Paternoster Row, London

THE DORSET BREED.

PLATE XI.

1. RAM, rising Three Years Old, Bred by MICHAEL MILLAR, Esq. of Plush, near Dorchester.
2. EWE, rising Three Years Old, from the same Flock.

A breed of Sheep has, from time immemorial, been naturalized in the county of Dorset, which formerly extended over a large tract of country. These Sheep possess small horns, common to the male and female. They have white legs and faces: their wool is fine, but only applied to the making of second or livery cloths, and it weighs about four pounds the fleece. Their limbs are somewhat long, but without coarseness: their shoulders are low, and the loins broad and deep: their lips and nostrils are black, though with a frequent tendency to assume a fleshy colour. The wethers fatten at three years old to about eighteen pounds the quarter. They are a hardy race of Sheep, docile, suited to the practice of folding, and capable of subsisting on scanty pastures. Their mutton is very good, but not equal in juiciness and flavour to that of the mountain breeds.

The property of the Dorsets which remarkably distinguishes them is the fecundity of the females, and their readiness to receive the male at an early season. They have been known, like the Sheep of some warmer countries, to produce twice in the year. This, however, is rare; but it is common for the females to become impregnated while they are nursing their young. They will receive the male so early as the months of April or May. The common period of admitting him is in the early part of June, so that the lambs shall be born in October, and be ready for use by Christmas. This has given rise to the practice of rearing the lambs in houses, until they are ready for the market. The system has long been regularly pursued, especially within reach of London, where a great demand exists for this kind of luxury. The rams employed to cover the ewes for these early lambs are not usually the Dorsets, but the Leicesters or Southdowns, and chiefly the Southdowns. The crosses are excellent, and no better nurses can be found than the Dorset mothers.

The form of the Dorsets has a great resemblance to that of the Spanish Merinos. The resemblance, however, is entirely in figure, for the properties of the two races are very different. While the females of the Merino race are bad nurses, the Dorsets are the most productive of milk of any of our races of Sheep. In the broad and deep loins of this race, we have the same external character which, in the case of the cow, indicates the faculty of yielding abundant milk. The remarkable fecundity of these Sheep has given rise to the supposition that they are derived from some warmer country, where the females bring forth twice in the year. We have, however, no evidence of this fact, and may accordingly believe that the property is one which is due to situation, although the peculiar circumstances, whether of climate or food, which give rise to it may escape our observation. The country of the Dorsets is calcareous, being partly on the limits of the chalk formation, and partly on the lias and oolite; the climate is mild, and the herbage is mixed with wild thyme and other aromatic plants. Formerly, the race was greatly more diffused in England than it now is. WILLIAM ELLIS, in his Shepherd's Guide, published in 1749, describes the west country Sheep as having "white faces, white and short legs, broad loins, and fine curled wool." He says they are of different sizes, the smaller sort being fed on commons, and that they are more tender of their young than any other, and in an especial manner the Dorsetshire variety. "Whereupon," says he, "those farmers that live in Hertfordshire, Buckinghamshire, Bedfordshire, Middlesex, Surrey, and Kent, and would be masters of a fine kind of Sheep, for folding, fattening, and breeding lambs, cannot have a better sort."

Since the period referred to, however, this race of Sheep has been continually diminishing in numbers. The extension of the improved Leicesters and Southdowns gradually circumscribed the limits of the ancient Dorsets; and in the various midland and eastern counties in which they formerly abounded, scattered flocks only are found, and these rarely pure.

The crosses of this breed with the Leicesters and Southdowns being superior to the original stock, a powerful cause is in operation to produce an intermixture of blood; and were it not for the demand which exists in the great towns, and especially in London, for early lambs, the Dorsets might be expected, like so many of the older breeds of the country, to become extinct. Should this take place, we know of no means of supplying its place, for no other breed of these Islands possesses the properties of early breeding and fecundity in the same degree. While, therefore, the rearing of early lambs continues to be profitable, the utmost care should be used in preserving the purity of this ancient race, and in calling forth, by selection of the male and female parents, those properties which it possesses in so eminent a degree. The purest of the race are now to be found in a district round Dorchester.

THE DORSET BREED.

The Dorset Breed extends to the rich and beautiful county of Somerset, where it is now reared in greater numbers than in Dorsetshire itself. It here exhibits, however, some difference of character. It is distinguished from the true Dorset by the colour of the nose, which is of a fleshy or pink colour, resembling that of the Merino. The Pink-nosed Somerset is larger than the Black-nosed Dorset, and of lanker form. The wool is somewhat longer, but nearly of the same fineness. The wethers when fattened attain to greater weight, and the lambs are larger. The Dorsets, however, are considered as exhibiting the characters proper to the females in greater perfection. In the case of the Somersets, the usual period of admitting the males to the females is about the 10th of May, so that the ewes may lamb in September or early in October.

In both of these counties, especially in Dorsetshire, the Southdowns have been making continual progress, either being substituted for the native races, or being employed to cross them. They are better suited than the Leicesters to mingle with the Dorset race, producing well-formed animals, and increasing the value of the fleece.

The numerous varieties of the same group which inhabited the older commons are now nearly extinct, although traces of the characteristic form may still be observed in certain places. One variety, however, is still to be found in a state of purity. It inhabits the Isle of Portland, where it has been kept unmixed for an unknown period. These little Sheep have horns in the male and female. They are gentle and of good form. They have a tinge of dun on the face and legs. Their wool, like that of the Dorsets, is of medium fineness, weighing about two pounds the fleece. They are washed, before being shorn, in the salt pools left on the shores by the returning tide. Their mutton is exceedingly delicate, and the wethers, when fat, at two years and four months old, weigh from ten to twelve pounds the quarter.

The climate of the Isle of Portland is moist, and the natural herbage is largely mixed with wild thyme. The number of Sheep in the island amounts to about 4000. Some years ago a flock of them was taken to the Derby hills by Sir GEORGE CREWE, M.P., and it is said that they supported well this change of climate and situation. No purpose, however, of economical utility can be served by carrying this curious race beyond the narrow limits where it has acquired the characters which are proper to it.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Hullmandel, 35, St. James's Square.

THE MERINO BREED.

Ram & Ewe, bred by Mr. Benett, of Pyt House, Wiltshire, M.P.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published February, 1841, by Longman, Orme, Brown, Green & Longmans, Paternoster Row, London.

THE MERINO BREED.

PLATE XII.

RAM and EWE, Bred by THOMAS BENETT, Esq. of Pyt House, Wiltshire, M. P.

From early times Spain has been noted for the production of numerous flocks of Sheep, and of wool adapted to the fabrication of the finer cloths and tissues. That country presents great diversity of surface and natural productions. Towards the south and east it is more African in its character than any other part of Europe. The interior consists of elevated plains, bounded and traversed by long ranges of mountains, the summits of which sometimes rise into the region of perpetual congelation. Descending from these chains of mountains are several noble rivers, which carry their waters to the Mediterranean and Atlantic through plains and valleys of surpassing richness and beauty. The climate varies greatly with the altitude, but the air is every where pure and dry. The vegetable productions are those of the warmer as well as of the colder parts of the northern temperate zone. The orange, the citron, the olive, and the vine, are common productions of the lower plains; the rocky mountains are covered with cisti, arborescent heaths, and many beautiful and fragrant herbs; and in the cultivated country are mingled the plants of the warmer with those of the temperate regions, the maize, the sugar-cane, the rice, and the sorghi, with wheat and other cerealia. Numerous varieties of Sheep occupy the plains and mountainous country. Some produce a long wool, deficient in the property of felting, but fitted for the manufacture of the looser fabrics, as carpets and flannels, as well as serges and the lighter tissues. These long-woolled Sheep are found in the lower and more cultivated countries. The short-woolled Sheep inhabit, for the most part, the sandy downs, and the mountains and elevated plains of the interior, where a finer herbage prevails. They are altogether distinct from the larger Sheep of the richer plains, although both have been largely mingled in blood together, and have produced a mixed progeny, which is very numerous.

This fine country, so rich and beautiful, has rarely been permitted to avail itself of its unrivalled resources. With a few happy intervals, the history of Spain is one of intestine troubles, of foreign wars, of civil intolerance, and religious bigotry. Its former inhabitants, apparently of the same great family of mankind which peopled Gaul and other countries of Western Europe, were early visited for the purposes of commerce by Phœnician voyagers, and subsequently by the Samians and other Greeks, who were permitted to establish towns on the coasts of the Mediterranean. These strangers at first contented themselves with their little maritime colonies, and with the means of intercourse which these afforded with the native inhabitants; but at length the Phœnicians, with that desire of colonization which distinguished them, founded the city of Gades, now Cadiz, beyond the Gaditanian Strait. The natives, alarmed at this encroachment, prepared to attack the intruders; when the latter, in an evil hour, called to their aid the Carthaginians, then the most powerful maritime people of the Mediterranean. Disregarding its allies, this ambitious state began on its own account a system of cruel conquest, penetrating through the very heart of the country to the Ebro, establishing fortresses and founding cities, amongst which was the noble city of New Carthage, which to this hour retains the name Cartagena. In the year 216, B. C., the fatal siege of the city of Saguntum, situated in the modern kingdom of Valencia, gave rise to the memorable wars between Carthage and Rome, which ended in the destruction of the Carthaginian Commonwealth, and the supremacy of its relentless rival. In the mean while the Romans pursued the conquest of the devoted country to which they had been called as protectors. But nearly 200 years elapsed before they were able to bring it under subjection. At length all Spain became a peaceful province of Rome, receiving in exchange for her independence a longer exemption from the troubles of war, and a greater degree of public prosperity, than she has ever again been permitted to enjoy. Under the wise administration of Roman laws, Spain soon became the richest, most industrious, and most powerful of all the dependent nations of the empire. It was during the period of Roman dominion, continued for more than 450 years, that this country became distinguished for her commerce, her agriculture, and her other arts. Some of her cities were reckoned amongst the most opulent of the ancient world; and aqueducts, bridges, and ways of communication, now in ruins, attest a degree of civilization and refinement to which, except under the partial dominion of the Caliphs, she never again reached.

The Roman writers, in their casual notices of the productions of this important province, speak of its wool as being greatly esteemed for its fineness. It is described as being black. PLINY the younger informs us that the finest wool, of a black colour, was brought from Truditania; and STRABO, who wrote in the reign of TIBERIUS CÆSAR, says, that wool suited for the finer garments of the Romans was brought from the same country. PLINY, while he mentions the fine wool of Truditania, states,

THE MERINO BREED.

that yet superior to it was the red wool of Boetica, that is, of the countries of the Boetis, now the Guadalquiver, forming the modern Andalusia, and part of Estremadura. The red wool of Boetica still remains, and is probably the same as that distinguished by the ancients under the name Milesian, brought from Asia. It is stated by MARTIALIS, himself a native of Spain, to be of the colour of wine. It is long and very soft, differing entirely from the wool of Spain, now so celebrated, termed Merino.

The Roman power in Spain terminated in the year of our Lord 456, and was supplanted by that of the Northern Barbarians. In the year 409 the Vandals, Suevi, and Allani, having forced the passes of the Pyrenees, carried rapine and desolation throughout the tranquil and happy land. The Roman legions, few in number, and fallen off in discipline, and the inhabitants become unwarlike from disuse of arms, were unable to make head against these cruel enemies, who did not, however, long enjoy their bloody triumphs. A nation of Goths, who had become the allies of the sinking empire, drew their swords for the recovery of Spain, and, after a series of murderous conflicts, succeeded in restoring it nominally to its ancient masters. The Goths were worsted in their turn; but at length their king THEODORIC, by one decisive battle, established a Gothic monarchy in Spain, an event which introduced the feudal system in its rigour, shook the whole framework of society, and has influenced the fortunes, character, and institutions, of the Spanish people up to the times in which we live. The term Hidalgo, or son of a Goth, became a title of distinction, and those privileged classes were established which have been the bane of the country ever since. During the long dominion of these Gothic princes, upwards of 250 years, civil and religious wars desolated the country, and nothing can be recorded favourable to industry and the arts except that, towards the termination of this period, the enslaved country began again to enjoy something like repose.

The Gothic dominion was doomed in its turn to a terrible overthrow. In the year 712 the Arabs, then termed Saracens, having overrun the whole of Mauritania except the little fortress of Ceuta, landed a tumultuary army on the shores of Andalusia, and in one great battle, fought at Xeres, decided the fate of Spain. They defeated the Christian army of a hundred thousand men, and, pursuing their victory, reduced in an incredibly short space of time nearly all Spain to the dominion of the Caliphs, leaving the vanquished in possession of their laws and religion, under payment of the tribute prescribed by the stern tenets of the Koran. A remnant of the Goths, under their leader PELAGIUS, retired to the mountains of the Asturias, whence they were afterwards able to roll back the tide of conquest on the invaders of their country.

The Moors, as the mixed races of Arabian and African conquerers were termed by the Spaniards, brought with them the arts of the East to their new country, and cultivated them with success during their long dominion. Although their possessions were at length divided into separate states often at war with one another, and almost always with the Christians in contact with them, they brought the subject country to a high degree of prosperity and civilization. No people ever underwent so sudden a change of character and habits as the wild and fiery Arabs in the delicious country which they had rendered their own. They cultivated agriculture, and brought the art of irrigation especially, to great perfection. They were skilled in the useful mechanical arts, and established looms, forges glass-houses, dye-works, and manufactures of silk, cotton, paper, leather, and the like, in all their principal cities. They even cultivated letters and the fine arts, when all the rest of Europe was sunk in darkness. Their aqueducts, bridges, mosques, and other edifices, remain to this hour the monuments of a taste, industry, and skill, which their successors have never been able to equal. But that of all their arts which the most interests us with relation to our present subject, is their woollen manufacture. They fabricated cloths, carpets, serges, and the other lighter tissues suited to the warmer countries. In the city of Seville alone were many thousand looms constantly at work, and others of their cities are scarcely less distinguished for the same class of manufactures. The woollen tissues of Spain were then the finest of the world, and not only supplied the demands of luxury at home, but were carried to other parts of Europe, to Africa, and all the countries of the Levant.

But the splendid dominion of the Moors in Spain had early begun to be circumscribed by warlike enemies, and at length, in the course of ages, passed away. The Christians, under their Gothic leaders, emerging from their northern fastnesses, wrested back by slow degrees kingdom after kingdom; and after the lapse of 780 years of heroic struggles, unexampled in the history of mankind, Granada alone remained to the Moslem conquerors of all their rich dominions. This, too, fell after a gallant defence; the inhabitants being left by treaty in possession of their property and the exercise of their religion. The fall of Granada took place in 1492, by which time all the separate kingdoms of Spain had been united by conquest or inheritance in the persons of FERDINAND and ISABELLA, so that Spain once more became a kingdom; and the discovery of the New World, with its boundless treasures, seemed to render it at once the most powerful in Europe.

But the seeds of decay had been sown along with the Christian triumphs. As one kingdom after another was wrested from the Moors, they were partitioned among the great seigniors, and the system of feudal vassalage was established in its worst form. The powers conferred on these warlike feudatories were alike in opposition to the rights of the people and the prerogatives of the executive power. The laws were disregarded by subjects so powerful, and tumults and conflicting jurisdictions destroyed the peace

of the country. Religious intolerance and the usurpations of priestly authority aggravated the civil disorders, and triumphs which should have been hailed as the harbingers of peace did nothing to promote the industry and happiness of the country. FERDINAND and ISABELLA, wise and sagacious as their general administration was, were embued with all the bigotry of the age in which they lived. They established the Inquisition, one of the most savage institutions which has arisen since the dark ages. This junta of sanguinary priests directed their vengeance against the Jews, in whose hands was the principal part of the internal traffic of the country. It has been computed that within four years after the establishment of this tribunal, six thousand of these unfortunate persons were publicly burned, and that a hundred thousand suffered every cruelty short of death. But it was against the Moors, who in the days of their prosperity had shown so noble a forbearance, that the rage of these merciless ruffians was especially directed. No sooner had Granada fallen than this unhappy race was doomed to all the cruelty and indignity which savage minds could devise; and by degrees all the benefits of their industry were lost to the country which they had enriched. Such was the state of Spain when CHARLES V. succeeded to the fairest dominions that ever European prince had possessed. The history of his ambitious life is known to all the world. With the glory of his magnificent reign, the decay of Spanish power proceeded with silent steps. At the age of fifty-six, amidst the germs of future wars, he resigned his crown to his son PHILIP, who, though not destitute of talents, never arrived at the reputation of his father. This cruel Prince was defeated in almost all his schemes of selfish ambition; and the treasures of America, so far from adding to the wealth of his country, destroyed its prosperity, by withdrawing the attention of the inhabitants from those arts which could give it true riches. The persecution of the Moors was continued by him with increasing atrocity. The fires of the Holy Inquisition continued to burn by his command. The resistance which this provoked in the victims was the signal for further butcheries; and, in the reign of his successor PHILIP III., the ruin of the industry of the country was completed by the expulsion of the remnant of the devoted race. Those that survived had conformed to the observances of the Christian faith, but they were now to be driven away like felons from the land. The pretence was, that, though Christians in appearance, they were Mahommedans in their hearts. Thirty days were allowed these victims, above six hundred thousand in number, to prepare for their departure; after which it was death for any one to remain. Spain thus lost, by acts of imbecility and tyranny, the most industrious of her population. The effects of this loss she never recovered, but, exhausted by wars, emigration, and imposts, sank into a state of languor and impotence which rendered fruitless the blessings that Nature had left her. The flocks of her mountains remained, but the industry that gave them value was taken away. In place of the beautiful fabrics which the arts of her people produced, it is the raw produce only which is now exported, and that in a diminishing quantity from year to year.

The Spanish Sheep, it has been said, consist of two general classes, comprehending, (1.) those which produce long wool, and which are generally the inhabitants of the more cultivated countries; and, (2.) those which produce short and felting wool, and which are chiefly found on the mountains, elevated plains, and downs. Of the latter varieties of Sheep, greatly the most numerous and valuable are termed Merino,—a word of doubtful origin, but derived from the adjective Merino, applied by the Spaniards to sheep moving from pasture to pasture; whence, too, the word Merino, signifying a judge of the sheep-walks, and Merinadad, denoting the jurisdiction of the judge. Numerous conjectures have been formed regarding the origin of this race of Sheep, so distinct from any other indigenous to Europe. It cannot, however, now be known from what beginning, or by what progressive steps, this remarkable race has acquired its distinctive properties, nor does it seem necessary to resort to any extreme supposition to explain the effects. Spain appears to have been distinguished in every known age for the fineness of the wool of its Sheep, which we may reasonably believe to be due to the climate, herbage, and other physical circumstances of the country in which the animals are naturalized. It is, however, a reasonable supposition that the Merino race, which produces not only a fine, but a remarkably oily and felting wool, has been formed by some mixture of other races with the Sheep indigenous to the country. It has been supposed by some that it is derived from the Oves Molles, or fine-woolled Sheep of ancient Italy; but the evidence upon which this opinion rests cannot be regarded as satisfactory. COLUMELLA, a native of the south of Spain, informs us that his uncle of the same name introduced some of the fine-woolled Sheep of Italy into his Spanish farm; but he likewise informs us that he procured some African rams which had been brought to be exhibited at the public shows at Rome. How far these crosses affected the native breeds cannot be known; but the facts may lead, perhaps, to the conclusion that the wool of Spain, although distinguished for its fineness, had not attained the perfection at which it afterwards arrived. There is great probability that the Sheep of Northern Africa were mingled in blood with those of Spain during the long period of Moorish dominion. We have no accounts, indeed, of the importation of African Sheep by the Moors; but if Sheep existed in Africa capable of yielding wool suited to the manufacture of the finer cloths and tissues, it is certain the Moors would obtain them; and we learn from the chronicles of the Spanish writers, that one at least of their own princes resorted to Africa for Sheep, and the illustrious Cardinal XIMENES, who governed the country during the minority of CHARLES V., is distinctly reported to have

THE MERINO BREED.

brought Sheep from Africa to improve the Spanish wool. It has been said, indeed, that we know of no race of African Sheep that produces wool resembling the Merino. Even if this were so, it would not invalidate the reasonable conclusions that may be drawn. The wool of the Sheep of Africa, like that of other warm countries, is mixed with hairs; but underneath these hairs is a short and downy fleece, and it is easy to suppose that on such Sheep being transported to a colder country, the woolly portion would be more developed, so as to afford a covering to the animal; but, in truth, it is known that exceedingly fine wool is found in the north of Africa, though the races of Sheep that produce it have not been discriminated by travellers, and that there is a remarkable tendency in the Sheep of Africa to produce that copious oily secretion of the skin which distinguishes the Merino race from any other in Europe. The fine woollen fabrics of the Barbary States are known over all the countries of the Levant, and are one of the few manufactured productions which these long desolated countries export. It has been the opinion of many that the Merino Sheep of Spain have been derived from England. STOW, in his Chronicles, informs us that "this yere" (namely, 1464,) "KING EDWARD IV. gave a license to pass over certain Cotteswolde Sheep into Spain;" and BAKER says, "KING EDWARD IV. enters into a league with JOHN KING of ARRAGON, to whom he sent over a score of Costal ewes and four rams, a small present in show, but great in the event, for it proved of more benefit to Spain, and more detrimental to England, than could at first have been imagined." From this slender incident it were idle to infer that the modern Merino owes its origin to the Sheep of England, though certainly the resemblance of the Dorset breed of England, and particularly of the variety termed the Pink-nosed Somerset, would seem to be sufficiently striking to give some countenance to the supposition. But the successor of KING JOHN of ARRAGON was FERDINAND, who married ISABELLA of CASTILE, and it was the minister of these Sovereigns who resorted to Africa for Sheep to improve the Spanish wool. Our early writers who assign an English derivation to the fine-woolled Sheep of Spain, were probably ignorant that already Spain was in possession of the best wool, and manufactured the finest woollen fabrics in Europe. Upon the whole, although authentic documents on the subject are wanting, there is a presumption that the Sheep of Africa were employed to perfect the Sheep of Spain with respect to the production of wool. The Merinos exhibit certain characters which seem to show them to have been derived from some country warmer than that in which they were naturalized, and it was during the dominion of the African possessors of the country that the wool of Spain arrived at its greatest excellence.

The Spanish Merino Sheep are of small size. The skin is of a reddish fleshy colour, and the wool is white, although black or dun sometimes appears on the legs, faces, and ears. The forehead is covered with a tuft of coarse wool, and coarse wool likewise appears on the cheeks. The males have large spiral horns; the females are usually destitute of horns. Both sexes have a certain looseness of skin under the throat, which is valued by the Spanish shepherds as indicative of a productive fleece. The legs are long, the sides flat, and the chest narrow. The fleece is altogether peculiar; it is close, short, and unctuous, weighing, from these causes, more in proportion to its bulk than the fleece of any other known race of Sheep. From its closeness, it feels hard when compressed, but, on examination, the filaments are seen to be of extreme tenuity, and no wool has been found comparable to it for the property of felting. It is not annually renewed, but will continue to grow for several years.

The Spanish Merino Sheep, when we regard them as animals to be fattened for human food, are of an inferior class. Their flesh is of indifferent quality, and they are of tender constitutions. The females are the worst nurses of any race of Sheep which inhabit Europe. So great is their defect in this respect, that in Spain half the lambs are killed in order that the ewes may be enabled to suckle the remainder, it being calculated by the Spanish shepherds that the milk of two ewes is required to bring up one lamb in a proper manner. Abortions are frequent, parturition is difficult, and the ewes are more apt to desert their offspring than any other Sheep which are known to us. In these respects the Merinos resemble the ancient Oves Molles of Italy, which were remarkable for the delicacy of their constitution, their voracity, unthriftiness, and inferior power of secreting milk. The same causes, it would appear, have produced the same effects. Attention having been mainly directed in both cases to the production of wool, the other properties were disregarded, of hardiness and the power of yielding fat and milk.

The Spanish Merinos, although retaining a certain degree of wildness, are yet very docile in their tempers. No Sheep place themselves more unreservedly under the guidance of the shepherds; and although late in arriving at maturity, and difficult to be fattened, they are readily satisfied with dry and innutritious pastures. When put amongst other Sheep they keep together, generally on the higher grounds. At night they form themselves into a circle, the rams and stronger sheep being on the outside, retaining thus the instincts which they had acquired in their native habitation. They are incapable of bearing the same extremes of cold and wetness as the hardy Mountain Sheep of Northern Europe; and yet they do not seem to be peculiarly affected by changes of temperature, which doubtless their dense fleece enables them to resist.

The Spaniards, who by degrees subdued the Moorish kingdoms, neglected tillage, and attended chiefly to their flocks and herds; and then it was that those immense sheep-walks seem to have been formed which cover so great a part of the country. Writers of the middle ages speak of the large flocks possessed by individuals, amounting to thirty or forty thousand each. Whether

HISTORY.

a very dry and arid region, their characters have become adapted to these conditions of climate and food. They are more compact than the horse of Barbary, having a rounder body, shorter limbs, with more of sinew, or what is termed bone. Yet they are of the smaller class of horses, very little exceeding, on a medium, fourteen hands, or fifty-six inches in height. As compared with the horses of countries abounding in the grasses, their aspect is lean, their form slender, and their chest narrow. But the slimness of figure of these horses is not inconsistent with muscular force; and their movements are agile, their natural paces swift, and their spirit unmatched. The power of their delicate limbs is indicated by the well-marked muscles of the fore-arm and thigh, and the starting sinews of the leg. The shoulder is sufficiently oblique; the withers are elevated; the back is moderately short; and the quarters are good. The head is well-formed; the forehead broad; the ears are somewhat long, but alert; the eyes full and clear; the veins prominent;—the whole rather indicating a happy union of gentleness and spirit, than that fiery temper which is associated with the common ideas of the Desert Horse. Bishop HEBER, in the narrative of his journey through the Upper Provinces of India, gives, in a passing notice, a more correct notion of the Arab than the more laboured descriptions of others:—"My morning rides," says he, "are very pleasant. My horse is a nice, quiet, good-tempered, little Arab, who is so fearless, that he goes without starting close to an elephant, and is so gentle and docile that he eats bread out of my hand, and has almost as much attachment and coaxing ways as a dog. This seems to be the general character of the Arab horses, to judge from what I have seen in this country. It is not the fiery dashing animal I had supposed, but with more rationality about him, and more apparent confidence in his rider, than the majority of English horses."

The figure in the Plate represents correctly the form of the genuine Arab. The horse here represented was taken in an attack by an Arab tribe on a party of the Royal Family of Persia, when journeying on a pilgrimage. The Arab chief who headed the attacking party was killed, and his charger, running into the Persian ranks, was taken. A ransom, enormous for so poor a tribe, was subsequently offered by the Arabs for their noble horse, but refused; and he was brought to England by Sir JOHN M'NEIL. He stands fourteen and a half hands high. He is gentle in the highest degree, and so thoroughly trained to that kind of exercise which the Arabs are careful to teach their horses, that he may be galloped round the narrowest circle. When his portrait was in the course of being painted, he was languid from the cold of the weather. It was wished to rouse him for a little, and the idea occurred of trying the effect of some tones of simple music. The sounds no sooner struck his ear than his whole frame was agitated; his heart throbbed so violently as to be seen beating; and so great was his excitement, that it was necessary instantly to stop the music. Some chord of feeling, it seems, had been struck: perchance he was reminded for a moment of his desert home, and of the friends from whom he had been so rudely severed.

The horses of England would perish under the scanty nourishment, the toils, and privations of the Arab. These Desert horses subsist on the scantiest fare, and are patient of hunger and thirst in a degree unknown in any other races except the African. They feed on the scanty plants which the borders of the desert supply, and when these are wanting, they are fed on a little barley, with chopped straw, withered herbs, roots dragged from the sands, dates when these can be obtained, and in cases of need, the milk of the Camel. They drink at long intervals, and in moderate quantities. They bear continued exposure to the fiercest heat, and day after day pursue marches of incredible toil through the burning sands of the wilderness. The temper of these beautiful horses is no less happily moulded than their bodily powers to their condition. They are gentle, patient, and attached to their rude and simple protectors. This, indeed, is to be regarded as the effect of training as much as of temperament; for these horses, under the charge of Europeans, frequently manifest a vicious and indomitable temper. But the Arab treats his horse as a companion, never beats him, but cheers him with his voice, and only uses him with seeming cruelty in those demands on the physical powers of the animal which necessity requires. In the desert, the mare of the Bedouin and her foal inhabit the same tent as himself and his children. She is the friend and playmate of the little household; her neck is often their pillow, and the children roll upon and caress her and her foal, and no accident ever happens. The mare of the Arab thus acquires a docility and attachment to man which nothing afterwards destroys. She is obedient to her master's voice, and will neigh when she hears his footsteps. Without a bit she will obey the slightest motion of the rider, stand at a word, or put herself at speed in an instant. Such is the creature so happily formed for the scanty herbs, the thirst and toils of the desert. These fine little horses have extended over all the East, and their descendants retain for a long time the characters which had been imprinted upon them in their native wilderness.

The horses of Arabia are produced in the greatest numbers in the countries bordering on Syria and the Euphrates, and there likewise the finest races are reared; nay, a great part of the horses called Arabian are in reality produced beyond the true geographical bounds of Arabia. The larger part of Arabia consisting of sands and rocky deserts, has never in any age been fitted for the rearing of many horses; and it is altogether an error to suppose that these steril regions are countries abounding in horses. Not only are the countries too barren for the rearing of horses, but the burning climate of the greater part of the

HISTORY.

of their conquests. These horses are still found to prevail in Poland, Moldavia, Hungary, and other countries of the Danube; and they have penetrated into Prussia and the countries of the Baltic.

The first of the European countries in which we have historical records of the domestication of the Horse is the glorious land of Ancient Greece. In the fifteenth century before CHRIST, coeval with the age of MOSES, the Olympic games are computed to have been established at Elis; but however this be, in a subsequent age, Elis, by common consent, became the theatre to which the warlike youth of Greece resorted to claim the olive crown for victory in the chariot race and athletic combats. Games at other places were established, and continued after Greece had ceased to be a country of warriors and freemen. The races of the chariot were the first in order of time and pre-eminence; but about the fifteenth Olympiad, the simple horse-race was added, and sculptured monuments remain to show the Grecian horse as he was caparisoned for either use. The Hippodrome, in which the horse and chariot races took place, was of narrow extent, and from the frequent turnings, all the address and courage of the charioteers and horsemen was called for. The horsemen used no saddles or stirrups, which added to the difficulty of the exercise, and the horses, like those of all the ancients, were unshod. The Greeks derived their finest horses from Asia Minor, but the races of the country were then, as now, of mixed blood, partly derived from the countries south of the Caucasus, and partly from Thrace and the countries of the Danube. The sculptured representations of the Grecian horse which have reached us exhibit much of what may be called the Caucasian character, mixed, however, with the hardier aspect of the horses of the North. The modern inhabitants of the same countries have likewise races of horses of mixed lineage. The finest of the Turkish horses are derived from the Asiatic provinces; the most esteemed for the saddle are obtained from the Syrian deserts and Arabia, and the most robust and most active and useful from Servia, Bosnia, and the other provinces of the north.

In Italy, the Horse had been subjugated from periods of great antiquity. Of the character of the early horses of the Italian nations we know nothing; but the representations of the Horse in a later age lead us to the conclusion that the Romans cultivated a strong and muscular horse, rather than one of much lightness and elegance of figure. But during the luxury of the empire, horses were necessarily derived from many sources, and races of mixed lineage established. Of the native breeds, the Tuscan and Etrurian were the most esteemed; of foreign races, the Spanish and Sicilian were valued; and in a later age those of Barbary were introduced, to give greater lightness to the horses employed in the Circensian games. The games of the Circus were established at an early period, and included both horse and chariot races. The Circus Maximus, first built by TARQUINIUS PRISCUS, was an oblong of three and a half furlongs in length, with rows of seats, one above the other, all round, capable, according to PLINY, of containing 250,000 persons, and, according to modern measurements, 380,000. Along the centre of the space ran a thick low wall, at the ends of which were pyramidal columns, rising from one base, termed Metæ, round which the horses and chariots turned. The race usually consisted of seven rounds, equal to between seven and eight miles. The horsemen were generally slaves or trained performers. A number of horses started together, and the riders were divided into parties distinguished by the colours they bore. The spectators interested themselves in the success of these parties rather than in that of the individual horses, as in the modern Turf; and the contests were altogether of a ruder character than we now associate with the ideas of this kind of exercise. The horses employed in it must have possessed strength as well as speed. The horses of modern Italy present a great diversity of character. On the irruptions of the barbarians, the horses of the northern wilderness must have been introduced in great numbers. During the times of chivalry, and the heavy armed cavalry of the middle ages, it may be believed that the more powerful kinds of horses would be sought for; and there are many of these still in Italy. The horses of Naples are yet in high estimation for their strength and noble action. Many of them were formerly introduced into England, and contributed to form the mixed races of that country. But the horses of Naples, as of other parts of Italy, have lost their value, as compared with foreign races, and few are now carried out of the country.

Spain is a country in which the Horse has been more mixed with African blood than in other parts of Europe. In the early part of the eighth century, the Moors and Arabs of Northern Africa invaded the country, and maintained a long dominion over it. During ages of heroic struggles they were by degrees subdued, and after the lapse of nearly 800 years, the remains of them, when deprived of weapons, and engaged in the pursuits of peaceful industry, were expelled by edicts of unheard of bigotry and cruelty. During this long period, the horses of Africa were introduced in great numbers, and affected in an important manner the characters of the native races. This mixture of blood was the greatest in Andalusia, Granada, and other kingdoms of the south, and here it is that the Spanish Jennet was formed, and is still found with its pristine characters. These elegant little horses were greatly valued over Europe. They are stouter than the Barbs, but have much of the same graceful and easy action. They are gentle, spirited, and capable of long and rapid journeys. They were used as palfreys in the middle ages, and numbers of them being brought to England, they were mingled with the native races.

France has long produced a vast number of horses for war, for the chase, for the saddle, and for carriages of every kind.

it was found that the continued heat of the southern parts of Spain was less favourable to the fineness of the fleece, or whether convenience or necessity led to a change of pasture during the summer months, a practice was early established of driving the flocks of sheep to the cooler countries of the north in summer, and back to the southern pastures on the approach of winter. These migratory flocks are by some termed Transhumantes; while the sheep that remain in the same district during the year are termed Estantes, or stationary.

The stationary Sheep consist partly of the larger sheep of the lower country, partly of mixed races, and partly of pure Merinos, which do not differ in any respect from the migratory Sheep of that name, except in the method of treatment. The stationary Merinos are reared where the district or farm affords them sufficient food during the whole season. They are most numerous in the central countries, where the pastures are less apt to be scorched by the heats of summer, as in Segovia, and the mountain ranges to the north of Madrid.

The migratory Sheep have been reckoned to amount to ten millions, which is probably equal to half the whole number of the sheep of Spain. They may be divided into two great bodies; those which are to pass chiefly into the kingdom of Leon, and those which are to pass farther to the eastward, to Soria, or even beyond the Ebro. These vast hordes of sheep break up from their winter cantonments, south of the Guadiana, about the 15th of April, and proceed slowly northward. The rams having been admitted to the ewes in the month of July, the lambs are born in November. In the course of their journey northward they are shorn in large buildings erected for that purpose. The western, or Leonese division, crosses the Tagus at Almaraz. The easterly, or Sorian division, crosses the same river further to the eastward at Talavera, and in its course approaches the city of Madrid. Having reached their destination they are pastured until the end of September, when they recommence their journey southward. Each of these journeys, of several hundred miles in length, occupies about six weeks, so that a fourth part of the year is consumed in travelling. The older sheep, it is said, when April arrives, know the time of setting off, and are impatient to be gone. In the ten or twelve latter days increased vigilance is required on the part of the shepherds, lest the sheep should break away. Some of them do so, and pursue their accustomed route, often reaching their former year's pastures, where they are found when the main body arrives. But, for the most part, these stragglers are carried off by wolves, which abound along the course which the migratory flocks pursue.

These migratory sheep are divided into flocks of a thousand or more, each under the charge of its own Mayoral or chief shepherd, who has a sufficient number of assistants under his command. It is his province to direct all the details of the journey. He goes in advance of the flock; the others follow with their dogs to collect the stragglers, and keep off the wolves which prowl in the distance, migrating with the flock. A few mules or asses accompany the cavalcade, carrying the simple necessaries of the shepherds, and the materials for forming the nightly folds. In these folds the sheep are penned throughout the night, surrounded by the faithful dogs, which give notice of the approach of danger.

When the Sheep arrive at the Esquileos, or shearing-houses, which is in the early part of their journey northward, a sufficient number of shearers are in attendance to shear a thousand or more in a day. The esquileos consist of two large rude rooms, with a low narrow hut adjoining, termed the sweating-house. The Sheep are driven into one of the large rooms, and such of them as are to be shorn on the following day are forced into the long narrow hut as close as they can be packed, where they are kept all night. They undergo in this state a great perspiration, the effect of which is to soften the hardened unctuous matter which has collected on the fleece. They are then shorn without any previous washing, and the wool is left in the esquileo, where it is sorted, and made ready for sale. By this arrangement 1000 Sheep or more are shorn, with the delay of only a single day.

The shepherds employed in tending these Sheep are calculated to amount to 50,000, which, supposing there to be ten millions of Sheep, is at the rate of 200 to each shepherd. The number of dogs is calculated at 30,000. These shepherds form a peculiar class of men, strongly attached to their pursuit, and living in a state of great simplicity. Their food is chiefly dark bread, oil, and garlick. They eat the mutton of their Sheep when they die, or meet with accidents. In travelling they sleep on the ground, wrapping themselves in their cloaks; and in winter they construct rude huts to afford shelter. They seldom, it is said, marry, or change their calling.

The whole of this extraordinary system is regulated by a set of laws; and an especial tribunal, termed the Mesta, exists for the protection of the privileges of the parties having the right of way and pasturage. These parties claim the right of pasturage on all the open and common land that lies in their way, a path of ninety paces wide through the enclosed and cultivated country, and various rights and immunities connected with the pasturage of the flocks. The system is opposed to the true interests of Spain. A change of pasture may be required for the flocks in the drier countries at certain seasons, but the periodical migration of so vast a body of Sheep cannot be necessary to the extent to which it takes place. Enormous abuses are committed on the cultivated country as they pass along. A fourth part of the year consumed in travelling must be prejudicial to the

THE MERINO BREED.

health of the animals in a greater degree than the benefits they derive from a change of pasturage. A prodigious mortality accordingly takes place amongst these Sheep; and more than half the lambs are voluntarily killed, in order that the others may be brought to maturity. The sale of the lamb-skins, which form a subject of export to other countries, is indeed a source of profit, but nothing equal to what the rearing of the animals to their state of maturity would produce. That these extensive migrations are necessary to preserve the fineness of the wool, is conceived to be an error. Attention to breeding and rearing would more certainly produce this effect than a violent change of place. In Spain itself there are numerous flocks of stationary Merinos, whose wool is of all the fineness required; and in other countries of Europe where the Sheep are never moved off the farms that produce them, wool is produced superior to that of the migratory flocks of Spain. The system is of great antiquity, and is so riveted in the habits of this ignorant and intractable people, that it is likely to be one of the last of those ancient abuses which will yield to the desire of change which at this moment agitates the feelings of men in this distracted country.

The Spaniards long preserved the monopoly of this race of Sheep with jealous care; but other countries at length were able to carry off the Golden Fleece of Spain, and the Merino race is now spread over a great part of Europe. It has been carried to North America, to the southern extremity of Africa, and to the boundless regions of New Holland, in all of which places it has been found to retain, with wonderful constancy, the characters which had been imprinted on it in its native pastures, and in certain cases to surpass in useful properties the parent stock. The first country, it is believed, which acquired the pure Merinos, was Sweden. In 1723, M. ALSTROEMER, a spirited and patriotic individual, was enabled to import a small flock of pure Merinos. In 1739 the Swedish Government entered with zeal into the plan, established an agricultural school under the superintendence of M. ALSTROMER, and used every means to extend the breed. The measures adopted succeeded to the degree of diminishing the importation of short wool, and increasing the manufacture of the finer cloths; and, after the lapse of more than a century, the stranger race produces wool nearly as soft and fine as at its first importation. The Sheep are housed during the six months of winter, and generally during the nights in summer; and it is by means of this artificial treatment that the wool preserves its original properties. The ewes are between two and three years old before they are suffered to breed, and seven years old before they are fattened for the butcher. They are far inferior in hardiness to the native races; and, if due attention were paid to the cultivation of the native breeds, it may be questioned if they would not be of superior economical value to the breeders. It is supposed that there are about 100,000 of the pure and mixed Merinos in Sweden, reckoned to be about 1-25th part of the Sheep of the country.

France, although in contact with Spain on the Pyrenees, did not attempt to acquire the Merino race until some time before the middle of last century, when the illustrious COLBERT, pursuing his numerous plans for extending the arts and commerce of France, brought several Merinos across the mountains for the purpose of improving the native Sheep. His plan, though well devised, was opposed by the prejudices of the people, and entirely failed. But in the year 1786, the French Government, adopting the same design, imported a considerable flock of pure Merinos, and established them at the royal farm of Rambouillet, near Paris, where their descendants yet remain. Every means were used to extend the breed amongst the agriculturists of France, but with little comparative success. In 1796 the Directory of the French Republic took yet more active means to multiply the breed. By a secret article in the treaty of Bâle, they obtained power to import from Spain 100 rams and 1000 ewes annually for five years. The Spanish Government quickly repented of this forced concession, and political events prevented the completion of the scheme, so that of the stipulated number only 2000 rams and ewes reached their destination. Napoleon resumed the project, and during his reign many Merinos were brought across the frontiers. In this manner have been introduced a great number of Merinos into France, which have either remained pure, or been employed to cross the native races. But, upon the whole, France has not been very successful in this branch of husbandry. Although the climate and soil of France are eminently suited to the production of fine wool, the minute division of property in land, the small extent of sheep pastures, and the habits of the peasantry, have not been favourable to any general system of improvement applied to this race of Sheep.

It is in the German States that the Merino race has been the most widely diffused, and the most successfully cultivated. The ELECTOR of SAXONY, on the close of the Seven Years' War, in 1765 obtained from the KING of SPAIN 100 Merino rams, and 200 ewes, taken from the best flocks of Spain. He kept them partly pure on his own farms near Dresden, and he partly distributed them throughout the country, for the improvement of the native Saxon Sheep. It was soon found that the race preserved all its properties, and was capable, under skilful treatment, and by due selection of the breeding parents, of surpassing, in the excellence of the fleece, the stock from which it had been derived. The most judicious means were employed to extend this branch of husbandry, by the establishment of schools for the instruction of shepherds, by the circulation of tracts, and otherwise, and very soon the wools of Saxony became the finest in Europe. The Saxon sheepmasters bestow a care in the selection of the Sheep producing the finest wool, which has no parallel in any other country. The best are reserved for propagating the

race, and by this means the characters which indicate the property of producing fine wool, are maintained or increased in the progeny. This is an application of the true principles of breeding; and the care with which the system is pursued, is the main cause of that unrivalled excellence to which the fine-woolled Sheep of Saxony have attained. The Sheep are kept in houses during the winter, and the general treatment of them, with respect to food, is adapted to promote the fineness of the fleece, the production of mutton being regarded as of secondary moment.

Prussia followed Saxony in the same course of improvement. In the year 1768, M. FINK, near Halle, in the Duchy of Magdeburg, introduced some Saxo-Merino Sheep, and ten years later several pure Merinos from Spain. His endeavours to improve the Sheep of the country attracted at length the notice of the Prussian Government, and in 1786 FREDERICK the GREAT imported direct from Spain 100 rams and 200 ewes of the pure Merino Breed. The greater part of this imported flock died near Berlin of various maladies; and those that were sent to distant parts of the country degenerated through the carelessness and want of skill of those to whom they were intrusted. M. FINK was commissioned to make a second purchase of 1000 pure Merinos; and agricultural schools were established, under the superintendence of M. FINK himself, for the instruction of shepherds, and for disseminating a knowledge of the method of treatment of the Sheep. These endeavours were successful, to the extent of improving, by the admixture of blood, the native races, and showed that the pure Merinos could be reared in Prussia without deterioration of the properties of the fleece. The animals are chiefly fed on hay, straw, and corn; and the same precautions are used as are necessary in other northern countries for protecting the Sheep from the inclemencies of the weather. A considerable number of Merinos of pure and mixed races are now produced in the Prussian States. The wool of Silesia, in particular, stands in the first rank, and has been made greatly to surpass that of the finest of the migratory Sheep of Spain.

Austria early pursued the same course which had been followed elsewhere. In 1775, the EMPRESS MARIA THERESA imported into Hungary 300 Merinos, and established them at the imperial farm of Meropail. A school for farmers and shepherds was established, and printed instructions were issued regarding the nature of the wool, and the methods of treatment to be adopted. Subsequent importations were made, and now a large proportion of the Sheep of Hungary are either pure Merinos, or Merinos mixed in blood with the indigenous races. The enormous estates of the Hungarian nobles, whatever may be their effect on general industry, are well adapted to the husbandry of Sheep; and this country can now boast of wool equalling in fineness that of the mountains of Spain. In Bohemia, and almost all the other Austrian States, Merinos have been introduced, and every where have been seen to equal or surpass the parent stock. In Wurtemberg, Hanover, Bavaria, and other countries of Germany, the same means have been employed, with success, to introduce the Merino race. It has been carried to Denmark and Norway, to Poland, Switzerland, and to the dominions of Russia, especially on the Black Sea, where a climate exists calculated to bring every natural production to excellence. The Merino race has thus been naturalized over the greater part of Europe, from Scandinavia to the Crimea; and Spain can never more possess the monopoly of a production which had descended to her as an inheritance for so many ages. The experiments show that a certain class of characters having been imprinted on a breed of animals, these characters can be preserved under very varying conditions of soil and temperature, by artificial treatment suited to the ends proposed, and by selecting, for the continuance of the race, the animals in which the properties required are sufficiently developed.

The Merino Breed, which had extended to so many countries of Europe, was at a period more recent introduced into the British Islands. GEORGE III., a zealous and patriotic agriculturist, resolved to make a trial of this celebrated breed on his own farms, and means were taken to obtain a small Merino flock. This was done clandestinely; the animals were selected from the flocks of different individuals, where they could best be got; were driven through Portugal, and embarked at Lisbon. They were safely landed at Portsmouth, and conducted to the King's farm at Kew. The flock was bad; the selection had been carelessly or ignorantly made; and the animals being taken from different flocks, presented no uniformity of characters. It was then resolved to make direct application to the Spanish Government for permission to export some Sheep from the best flocks. The request was at once complied with; a small and choice flock was presented to HIS MAJESTY by the MARCHIONESS DEL CAMPO DI ALANGE of the Negretti flocks, esteemed to be the most valuable in Spain, and in return HIS MAJESTY presented to the MARCHIONESS eight splendid coach horses. This flock arrived in England in 1791, and was immediately transferred to the Royal farms, while all those previously imported were disposed of or destroyed.

On the first change of these Sheep to the moist and luxuriant pastures of England, they suffered greatly from diseases, and above all rot, which destroyed numbers of them, and from foot-rot, which affected them to a grievous extent. By a little change of pastures these evils were remedied; and after the first season the survivors became reconciled to their new situation, and their progeny seemed thoroughly naturalized, and remained as free from diseases as the Sheep of the country. The wool was from year to year carefully examined; that of the original stock remained unaffected by the change of climate, while, in that of their descendants, little degeneracy could be detected either in its felting properties or fineness.

THE MERINO BREED.

This experiment excited extreme interest throughout the kingdom. Various individuals endeavoured to cultivate the pure race, but experiments were mainly directed towards crossing the native breeds with Merino rams, in the hope of combining the fineness of the Spanish fleece with the economical qualities of the English Sheep. With this design the Merino rams were made to cross the Southdown, the Wiltshire, the Leicester, and the Ryeland ewes; and in some cases the experiment was reversed, and the English rams, especially of the Ryeland breed, were put to the Merino ewes. Many distinguished agriculturists, Mr Coke, now Earl of Leicester, Sir Joseph Banks, the Duke of Bedford, the late Lord Somerville, and others, prosecuted these curious and important experiments; and the writings of Dr Parry and others brought the subject in a prominent manner before the country.

In the year 1804, when the sale took place from His Majesty's stock, many purchasers, the advocates of the Merino breed, came forward, and the Sheep were sold at high, though not at exorbitant prices; the average price of the rams was L.19, 14s. a-head, and that of the ewes L.8 : 15 : 6. In the following autumn a similar sale took place at advancing prices. Seventeen rams and twenty-one ewes were sold for L.1148, 14s., being at the average rate of L.30 : 4 : 6. At succeeding sales these rates were maintained or increased. In 1810 thirty-three rams brought L.1920, 9s., or L.38 : 9 : 11 a-head, and seventy ewes, the average rate of about L.37, 10s.

In the year 1811 a society was established under the presidency of the distinguished and indefatigable Sir Joseph Banks, with the express design of promoting and encouraging the cultivation of the Merino breed. Fifty-four vice-presidents were named, and local committees established in almost every district, or county, of England. This Society, the most influential from its numbers and the agricultural skill of its members that had yet been established in Britain, pursued their task with spirit and zeal. Amongst other means adopted for promoting the purposes of this institution, was the offering of premiums for pure Merinos, or for the crosses with the native Sheep. Every thing favoured the purposes of this patriotic band, and in an especial degree the unexampled prosperity of the landed interests of the country, and the enormous prices of the finest class of wools, produced by the events of the war.

Public opinion, however, and the practical judgment of farmers, had, even before this period, been reducing the pretensions of the Merino breed, and the mixed progeny, to the proper standard, as the subjects of economical culture. It was found, that however promising were the crosses at first, the progeny invariably fell short of the expectations formed. They were small in size, less hardy than the British parents, and generally of inferior form. So perfectly have time and experience confirmed these results, that there scarcely exists, except in the hands of the curious, a single flock of the mixed progeny from which so much was anticipated. They have either been abandoned altogether, or the breeders have gradually recrossed with English blood until almost all traces of the Spanish mixture have been lost.

In place, however, of attempts to engraft the Spanish upon the English stock, other breeders preserved the pure Merinos, and this experiment was greatly more successful than the other. The naturalized Merinos have been found to increase in size, in disposition to fatten, in the power of the females to yield milk, and, by attention in breeding, to improve in the external form. The wool becomes longer, and loses somewhat, though not much, of its tenuity, unless indeed the means are taken to secure the animals, as in Saxony, from cold, the necessary effect of which is to call forth a greater production of wool for the protection of the animal. The naturalized Merinos have never acquired the hardiness of the native races, and would perish at once on the mountains on which the Welsh, the Cheviot, and the Black-faced Heath-breeds are acclimated. Nevertheless, analogy conducts us to the conclusion, that the Merinos are capable of becoming by degrees adapted to the climate in which they are reared.

The objections to the cultivation of Merinos in the British Islands are not that they cannot be reared, inured to the cold, and improved in form, with a moderate preservation of the characters of the wool, but that they do not, as a breed, equal in economical importance those of which we are already possessed. The wool, indeed, is the most valuable and abundant of that of any race of Sheep that we can rear; but the wool is not the only profitable produce of Sheep in this country; and it is by a combination of the production of mutton and wool that the interests of the farmer are best served. The breed is in the country, can be obtained by every one, and has been the subject of trial by the best farmers, and yet we see it almost every where abandoned in favour of the native races. Did the British farmer, like the Saxon, derive his principal profit from the fleece, and little from the carcass, then he might cultivate the production of the one in preference to the other; but this is not the case under the present circumstances of this country, and the British farmer's interest is therefore different. He cannot afford to shut the animals in houses for half the year for the purpose of protecting them from the inclemency of the weather, in order that their wool may be fine; nor to feed them on hay and corn, in preference to the abundant roots, herbage, and forage plants, with which the agriculture of the country enables him to supply his animals.

If individual interest does not admit of the cultivation of fine wool in preference to abundant mutton, and the adoption of a

breed of inferior hardiness, early maturity, and fattening powers, so neither does it seem that the national interest requires it. Spain, and other countries of Europe where the fleece is more valuable than the carcass, are employed in producing fine wool, and the extended commercial relations of England enable her to obtain it, in the quantity which her manufacturers consume, from all these countries. Even her own colonies are now enabled to supply it in increasing abundance. Is it not better, then, that we should trust to commerce for the supplies of a commodity which can be raised more cheaply than at home, and devote our Sheep especially to the production of that food with which no other country can supply us, contenting ourselves with a kind of wool which, though less fine than that produced elsewhere, is all required and consumed by the manufactures of the country?

The most distinguished breeders of Merinos at this time in England are LORD WESTERN and Mr BENETT, M.P. for Wiltshire. LORD WESTERN'S stock is either Saxon, or has been crossed by Saxon rams; Mr BENETT'S is pure Spanish, and has undergone progressive improvement by selection of individuals of the same blood. The number of his flock amounted at one time to 7000; it was subsequently reduced to 3500. It was treated in the ordinary manner of Sheep in this country. LORD WESTERN'S, it is believed, is managed more in the Saxon manner, with respect to protection from the weather. Mr BENETT'S fine flock, notwithstanding that it had been thus acclimated, perished in great numbers in a severe winter some years ago, proving that the race had not yet lived sufficiently long in England to be perfectly inured to its cold and variable climate. Other gentlemen have imported Merinos direct from Saxony, and thus obtained at once the highest perfection of the fleece; but there is little reason to believe that their experiments will be more successful than those that had been previously made. Merinos have been lately carried in some numbers to Ireland, and may perhaps prove more advantageous than some of the existing breeds; but this will not show the great value of the Merinos, but the comparatively little value of the races which they have supplanted.

The Merino breed of Sheep has likewise been carried to a different region of the globe, and been subjected to a new set of external agents. The great insular continent of New Holland, presenting characters in its vegetable and animal productions which distinguish it from all other countries, has now received this important race, which has been found to adapt itself with the utmost facility to its new condition. The first European settlement in this remarkable country was made in the year 1788, when a party of English criminals was landed in Botany Bay. To supply the early colonists with wool and mutton, and establish a permanent flock for their future maintenance, Sheep were imported from Bengal. These were the small hairy animals found in that part of India. It was soon discovered that these miserable Sheep improved in their useful properties by the change of climate and food. They became prolific, the hair diminished in quantity, and a fleece of soft wool, though not of great fineness, succeeded. This simple experiment added to the many proofs before existing of the all-pervading influence of external circumstances over the form and characters of animals. The importation of Bengal Sheep was soon after followed by that of superior races from the mother country. Individuals of the Leicester and Southdown breeds were by degrees imported, affording the kinds which were wanted by the infant colony, namely, animals that should supply food rather than wool. This experiment was entirely successful, and the intermixture of the new Sheep enlarged the size and increased the economical value of the original race. The wool even of these crosses, notwithstanding of the most slovenly treatment on the part of their owners, was found equal or superior to the finest produced in the mother country; and in twelve years from the first landing of the settlers, the Sheep of the colony had increased to upwards of 6000. The result of these trials, and the growing prosperity of the settlement, produced a desire on the part of the wealthier colonists to try the fine-woolled Sheep of Spain which had been introduced into the British Islands. A few of this race were obtained from England, and the result, like all the previous experiments, proved the admirable adaptation of the country to the rearing of Sheep, and in an especial degree to the production of a fine and soft wool. After a few crosses with the existing race, the wool produced was found to be nearly equal to that of the pure Merinos of Spain; and when the original race was preserved without intermixture, the wool became more fine and soft than that of the same race in their native pastures. Merinos were now imported direct from Saxony, and this experiment likewise was successful. When the breed was preserved pure, the wool preserved its essential properties, with that increase of flexibility and softness which is the distinctive character of the Australian wools. Some of the wool of these Saxon Sheep, when it had been properly cleaned and attended to, brought the highest price of any other in the English market, and led to the belief that these rising colonies were destined to supply the manufactures of England with wool superior to that of any other country. These expectations were formed chiefly in consequence of the peculiar softness of these new wools, which fitted them to amalgamate admirably with the harsher wools of the country in certain manufactures. But although the best of the Australian wools still sustain a high character, they are not found to equal the Saxon in fineness, and that peculiar property which fits them for the manufacture of cloth. This is indeed the consequence of the different conditions of the two countries. In Saxony labour is cheap, and an attention can be devoted to the improvement of the Sheep and their wool, which is impracticable in a thinly peopled country, where the want of labourers cannot be supplied at any price. Under such circumstances, there must be a rudeness of management inconsistent with the minute attention necessary to preserve

THE MERINO BREED.

and increase to the uttermost the valuable properties of the fleece. The matter of surprise is not, that, under such circumstances, the Australian production should be inferior to the Saxon, but that it should so nearly equal it.

The island of Van Diemen's Land, situated to the south of New Holland, between the latitudes of nearly 41° and 44° south, enjoying a cooler temperature, and being more exempt from the severe droughts of the sister country, was settled by two ships which had proceeded from England with convicts. The first destination of these persons was Port Philip, which they reached in the autumn of 1805; but it being conceived that obstacles existed to the establishment of a permanent settlement at that port, they were carried to the river Derwent, where soon after Hobart Town, the capital of the new colony, was founded. Sheep of the defective Indian breed were soon afterwards introduced into the colony; but it was not until the year 1820 that the cultivation of fine-woolled Sheep was fully established. A flock of 300 Merino lambs was imported from Sydney; but, in consequence of a distemper which broke out amongst them previous to sailing, only 181 arrived at their destination in September 1820. These were distributed amongst the colonists about Hobart Town; and, some years later, pure Merinos were imported from Saxony. Thus the basis of a fine-woolled breed of Sheep has been laid in this interesting island, although as yet the wool produced has not equalled in value that of the sister colony.

The progressive increase in the numbers of sheep in these noble possessions is without example. In the year 1810 only 167 lb. of wool were imported into England from the colony of New South Wales. In 1820 the quantity had increased to 99,418 lb.; in 1830 to 973,336 lb. In 1832 the quantity brought from both colonies was 3,516,869 lb.; and since this period the importation has been proceeding in a constantly increasing ratio. Other settlements have been established on the coasts of New Holland, at Swan River, at Port Philip, and elsewhere; and more recently the tide of emigration has flowed into the lovely islands of New Zealand, which, however, being covered with dense forests, are less suited to the multiplication of sheep than the vast plains of New Holland. Thus, in regions almost unknown to the civilized world until within the memory of the living generation, in dominions exceeding in extent those of Rome in her glory, are to be found the means of supplying the woollen manufactures of England with the raw material in boundless quantity; and it is gratifying to humanity to think that the foundations of this great storehouse of public wealth have been laid, not in violence and bloodshed, but in agricultural prosperity, and the improvement of the fleece.

The attention of the Australian colonists has been naturally directed to the cultivation of fine wool; but it is evident that there are limits to the profits to be derived from this commodity, both from the increasing production of the country and from the rivalship of the districts of Europe where the Merino wool is cultivated. It is a question, therefore, whether the colonists should not now direct attention to the long or combing wools as well as to the short or felting. It is probable that the long wools of England would acquire, in these favoured climes, the very properties which would benefit them the most, and that the heavier fleeces of the Leicester, the Cotswold, and the Old Lincoln Sheep, would yield a larger profit to the wool-grower than even the higher priced Merino. But the two classes of Sheep should be kept entirely distinct. The Merino breed should be selected and cultivated with all the care which the state of the country will allow. Merinos of the pure race may be obtained in England; but in numbers too small to supply any considerable demand. They would be more conveniently procured from Saxony, proper precautions being employed in making the selection from flocks of established reputation. The best period for examining the flocks is the month of January, or even February. The cheapest mode of getting an improved stock is to purchase the refuse or cast ewes, but the proper mode to insure the obtaining of them of the best sorts is to make a selection out of the good flocks of the country. Unless, however, the purchaser is a very good judge of the quality of the wool, he will require an assistant in the country, who for a fixed amount per head, will make the selection; and it will be proper for those who are to make considerable purchases to send a trusty person to the country. The price for refuse ewes is from four to eight dollars, at 3s. per dollar; of selected ewes, from ten to twenty dollars, and of rams from L.3 to L.20. Some remarkably fine rams even bring prices so high as from L.50 to L.200; but this great expense can never be required except in the case of individuals who already possess highly improved flocks, which they are desirous of bringing to the greatest degree of perfection. In the case of Australian settlers, it would be well for a number to combine and purchase a considerable number at once, as from 1000 to 2000 ewes, with a corresponding number of rams. The best mode of proceeding would be, to collect the Sheep at Riesa on the Elbe, and ship them to Hamburg, a separate boat being hired for the purpose. Shipments might also be made from Dresden. The precautions to be used in making these purchases are, to deal only with persons of known character, and, as has been said, to obtain an assistant in the country to select the Sheep, and to send a trusty servant to take charge of them. The expense of purchasing and transporting the Sheep to England is not considerable; and when we consider the immense national importance of conveying to our Australian possessions the best of the race that can be obtained, it is to be trusted that the colonists will find it for their interest to resort to countries where the animals can be obtained in the greatest purity and perfection.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairlie & Co. St. John's Sq. Lond.

THE RYELAND BREED.

Ram & Ewe, from the Stock of the late Mr. Tomkins of Kingspion, Herefordshire.

THE RYELAND BREED.

PLATE XIII.

RAM and EWE from the Stock of the late Mr TOMKINS of Kingspion, Herefordshire,—now the property of Misses TOMKINS.

In the tract of country lying westward of the Severn, and bounded by the mountains of Wales, there has in every known period existed a race of Sheep of small size, destitute of horns, and noted for the softness and fineness of their wool. The part of England where this breed was long the most diffused and cultivated was the county of Hereford, a tract of the old red sandstone formation, stretching from the confines of Wales to near the Severn. But the breed extended into Monmouthshire on the south, into Shropshire on the north, and into Gloucestershire and Warwickshire on the east, occupying many forests, commons, and wastes. The variety reared in the county of Hereford was generally termed the Hereford Breed. Sometimes it was characterized by the names of the places in which it was found in the greatest numbers or perfection. It was sometimes termed the Archenfield Breed, and sometimes the Ross Breed, from the south-eastern district of the county lying between the Forest of Dean and the Malvern Hills. But it became at length more generally known by the name of the Ryeland Breed, from certain sandy tracts formerly devoted to the production of rye, situated southward of the river Wye.

We have no historical record of the derivation of this breed from any other country, and may therefore assume that it had been indigenous beyond all memorial to the districts which it inhabited. It may not unreasonably be inferred to be a variety of that widely-diffused race of soft-woolled Sheep which formerly extended from the mountains and islands of Scotland to the mountains of Wales, and which was probably in possession of the earliest Celtic inhabitants of the British islands. From its diminutive size, its patience of scanty food, and the lightness of its fleece, we may conclude that it was the native of countries of a low degree of fertility, probably of districts of forest, which, until cleared of their wood, are always unproductive with respect to the nutritive grasses. The county of Hereford, it is to be observed, though now rendered rich and beautiful by art, was formerly covered with woods, and interspersed with extensive commons and chases, which long remained waste and barren. We are not therefore to conclude, that, because the country is now fertilized, it was not formerly suited to the maintenance of a race of small Sheep. The nature of the wool of this breed, too, which was noted beyond any other for its fineness, caused the breed to be preserved unmixed, and with nearly its pristine characters, long after the county of Hereford had become capable of supporting larger animals.

The wool of the Ryeland breed was long regarded as the finest that the British islands produced. The ancient city of Leominster, being surrounded by a country producing this kind of wool, and being the market-town to which it was brought for sale, gave name to the wool of the country, which was termed Lemster Wool, or Lemster Ore. DRAYTON, who wrote in the reign of HENRY VIII., when comparing the wool of the Cotteswold Hills with the lighter fleeces of Lemster, bears testimony to the superior fineness of the latter. CAMDEN, describing the town of Leominster, "which," says he, "was also called Leon Minster, and Lyon's Monastery, of a Lyon that appeared to a religious man in a vision," says, "The greatest name and fame is of the wool in the territories round about it (Lemster Ore they call it), which, setting aside that of Apulia and Tarentum, all Europe counteth to be the verie best."

A method of treating the Sheep of this part of England, calculated to preserve and increase the fineness of the wool, existed until a recent period. The animals were kept during the night in large houses termed Cots, capable of containing from 100 to 500 sheep. This practice was probably adopted in early times, for the purpose of protecting the animals from the wolves which greatly abounded in the forests of the western counties. It may be supposed to have been continued afterwards by habit; but experience would show that it was eminently calculated to preserve and increase that fineness of the wool for which the breed was distinguished. The animals in these cots were sparingly fed with pease-straw and other dry forage, a system eminently favourable to the production of a short and delicate fleece.

The modern Ryelands, where they yet exist, retain the diminutive size of their progenitors. Their form is compact, and their mutton is juicy and delicate. They are gentle and well formed; and they are patient in a remarkable degree of scanty fare. Both sexes are destitute of horns. The colour of the whole fleece is white, and the wool extends forward to the face, forming a tuft on the forehead. This wool is yet the finest produced in England. It is not, however, equal in this respect to that of the Spanish Merino, nor so well suited, by its felting properties, for the purposes of the clothier, on which account, since the extensive introduction of

THE RYELAND BREED.

the fine wools of Spain and Germany, its relative value has greatly declined. Further, the Sheep are of small size, and inferior in economical value to the races which the country is capable of maintaining. Hence, the inducement to cultivate the breed has been constantly diminishing, so that it has now almost ceased to exist in a state of purity.

The smallness of the size of the Ryelands led to innumerable experiments in crossing, with the design of increasing the weight of the animals, and in the hope of maintaining the fineness of the wool. The experiments failed, as might have been anticipated, with respect to the preservation of the quality of the wool, but succeeded in increasing the size of the progeny. But the system of crossing, which excited the greatest attention, and from which the most favourable results were anticipated, was with the Spanish Merino, soon after the introduction of that celebrated breed into England. Strenuous exertions were used by individuals and public associations to introduce the Spanish blood, and sanguine calculations were made of the benefits likely to result to the woollen manufactures of the country. Time and experience have proved the fallacy of all these hopes, and left to agriculturists an instructive lesson on the principles of breeding. The first crosses promised well; but, in breeding from the mixed progeny, it was found that, while the wool had become inferior to that of the Spanish stock, the hardy qualities, the goodness of form, and the aptitude to fatten, of the English breed, were impaired. The crosses became remarkably diminutive; and the whole labour of the experiments was found to have been thrown away. It was assumed that the Spanish Merino and the English Ryeland were the same race. A better knowledge of either would have shown that the two races were remarkably distinct in their characters; and that, if any of the English breeds were suited to this kind of crossing, it was the Dorset and Pink-nosed Somerset, and not the diminutive Ryeland. This species of crossing has been long in disuse, but numbers of the flocks in Herefordshire and the adjoining counties still exhibit traces of the Spanish mixture.

Some breeders endeavoured to improve the native race by selection of individuals and superior feeding. The breed, however, was naturally diminutive, and numerous generations of Sheep must have passed away before this radical character of the race could have been changed. The system, therefore, was resorted to, of effecting the end by crossing with larger animals, as the South-downs, the Leicesters, and the Cotswolds. It was found, however, that scarce any of our races of Sheep was with more difficulty amalgamated with others than the ancient Ryeland; and a vast number of worthless Sheep were long produced in Herefordshire by these crosses. A better course was found to be to substitute at once the stranger stock, which it was proposed to cultivate. Numbers accordingly, chiefly Leicesters and Cotswolds, are now reared in the country, and the Ryeland breed is diminishing from year to year. It was from one of the few remaining flocks of the unmixed Ryeland, kept in the lower parts of Herefordshire, that the figures in the plate have been taken. It was the stock of the late Mr Tomkins of Kingspion, the distinguished improver of the modern breed of Hereford cattle. Mr Tomkins persevered in keeping up the breed of his native county. He succeeded in communicating to it greater symmetry of form, but he did not succeed in enlarging the size to the degree of rendering it of equal economical value with the races by which it has been supplanted.

All the minor varieties of this once celebrated breed have partaken more or less of change. One variety, greatly distinguished, inhabited the Forest of Dean, a tract of the coal-formation lying between the Severn and Wye. This tract was formerly covered with one of the densest forests in England,—"So dark and terrible," says Camden, "by reason of crooked and winding waies, as also the grisly shade thereof, that it made the inhabitants more fierce, and boulder to commit robberies." By the discovery of mines in this forest, the woods were gradually thinned, and at last nearly extirpated; and it then continued to be occupied by a kind of Sheep, which, until our own times, were held in the greatest estimation for the fineness of their wool. The Dean Forest breed has now disappeared in the pure state, having merged in the crosses of all kinds that have been made with it. A similar variety occupied the Malvern Hills on the confines of Worcestershire; but here the flocks have likewise become a mixture of various races. In Shropshire were several varieties of the same hornless sheep inhabiting the different forests and commons. The Chum Forest breed had wool weighing from 2 lb. to 3 lb. the fleece; and the Shawberry breed, sometimes called the Tadpole, from its diminutive size, had wool of extraordinary tenuity and softness. The mere remnants of these and other varieties are now only to be found; the admixture of the races of the lower country, or of the mountain breeds of Wales, having nearly obliterated the former distinctions.

Thus, the finest-woolled Sheep of the British Islands may be said to be extinct as a breed. Their former value, arising from the adaptation of their wool to the manufacture of native cloth, has been lost. Commerce now supplies us with wool more adapted to the purposes of the clothier; and other native races afford a material better suited, by the length and strength of its filaments, to the class of manufactures in which the combing wools, as they are termed, are employed. These longer-woolled Sheep are likewise fitted to yield a larger return to the breeder who has artificial food at command; and hence the disappearance of the fine-woolled Sheep of the western counties is merely the result of the better cultivation of the country, and of changes in the channels of commerce and manufacturing industry.

Drawn by M.r Nicholson R. S. A. from a Painting by M.r Shiels, R. S. A.

Drawn on Stone & Printed by Fairland 45, St. John's Square

THE SOUTH DOWN BREED.

Ram, a Four-shear Sheep, bred by John Ellman, Esq.r, of Glynde, in the County of Sussex.

Drawn by Mr. Nicholson, F.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairland, 45, St. John's Square.

THE SOUTH DOWN BREED.

Ewe and Lamb, bred by Thomas Ellman, Esqr. Beddingham, from a Ewe bred bred by the late Mr. Ellman, of Glynde.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published June 1, 1841, by Longman, Orme, Brown, Green & Longmans, Paternoster Row, London.

Art L

Acquired 1974

The Gift of

C. Mackay-Smith

HISTORY.

distinction in Persia ride on horseback, and scarce any one will deign to go the shortest distance on foot. Sir JOHN MALCOLM gives an amusing anecdote illustrative of the national feeling. A naval officer belonging to one of the British frigates, in paying a visit to the Envoy, thought it fitting to procure a horse; but unfortunately, like other gentlemen of his profession, he did not feel himself quite at home, as we say, in the saddle, that is, he rode very ill. The native who supplied the ship with vegetables, jealous of the honour of his European friends, excused the matter to his countrymen by giving it out privately that the English gentleman was drunk, conceiving it to be less dishonourable to his new friends to be drunk at noon than to be unable to ride. To the north and east of Persia are countries of great fertility, where the same form of the Horse presents itself, but large and powerful, and suited for the exertion of physical strength. The horses of the Turcomans near the Caspian Sea are sixteen hands high, and of fine action and great powers of endurance. Further to the north, however, beyond the latitude of the Caucasus, we enter the elevated plateau of Central Asia, extending all northward to the Arctic Ocean, and all eastward and southward by the elevated mountains of Thibet to the sea of Japan. This vast region, comprehending the Russian Empire in Asia, and what is termed Chinese Tartary, consists chiefly of immense plains of great elevation, and possesses a climate of which the rigour of cold is intense during a great part of the year. It produces, however, gramineous and other plants suited for herbage, which grow with tolerable luxuriance during the warm months, but which, for the remainder of the year, are nipped by the rigour of the climate, or buried beneath the snows. Towards the confines of Europe this region inclines somewhat to the west, and has a milder temperature: towards the east the declination is easterly and northerly, and the cold of winter is intense. In the western part, which is greatly the smallest division, are found the Tartar nations, known generally to the ancients as Scythians. Towards the eastern slope are the vast countries of the Kalmuks, and other Asiatics of the same great family of mankind. All these countries have been possessed in every known age by nations of migratory herdsmen, possessed of sheep, oxen, and troops of horses, up to the latitudes in which the Horse ceases to be found. This region, towards its western limits, possesses a race of low stature, but muscular, strong, and fleet. Proceeding eastward and northward, the horses gradually diminish in size, until, towards the eastern limits, they become dwarfish, scarcely exceeding thirty-six inches in height. Some of the tribes possess them in vast numbers: thousands are sometimes to be seen together, free as the air they breathe, yet readily driven to their allotted watering-places and pastures. They are the cherished possessions of these wandering people, who feed upon their flesh and milk, sometimes converting the latter into an intoxicating liquid. The stout little horses of the western Tartars are carried in great numbers into Russia in Europe, and even to Poland, Hungary, and other countries of the Danube, where they are greatly esteemed for their hardiness and activity. The yet smaller races of the eastern region are diffused through the mighty empire of China, the countries termed India beyond the Ganges, and the larger Asiatic Islands.

Hindostan may not unreasonably be supposed to have derived its horses as well as its human inhabitants from Western Asia; and we may further believe that, in these vast and gorgeous regions, the Horse has been subjected to domestication from the remotest antiquity. Over a country so vast and diversified, numerous breeds necessarily exist, whose characters have been formed by the nature of the localities in which they have been naturalized. But besides this source of diversity, there is that produced by the introduction of foreign races, either by the various conquerors of the country, or by the means of commerce and otherwise. In general, it may be said that India is not a country very favourable to the production of the Horse. The tallest and strongest are found in the northern provinces, in the countries near the Indus; but towards the warmer countries of the south and east, the horses fall off in strength and development of parts. The Indian horses are generally of the smaller class, seldom rising above fourteen and a half hands in height, and mostly falling below that standard. They are showy enough, but are deficient in bone below the knee, and are often of bad temper. But there are great numbers of fine horses in India, chiefly of foreign lineage. There is a constant trade in these animals going on from Persia and Caubul; and a continued importation from Arabia to Bombay and other parts of the coast. This is due to European individuals and the wealthier natives; and the East India Company has long employed active means to improve the indigenous races by the establishment of studs, to which strong half-bred stallions are sent from England. In this manner are superior horses introduced, and the races of the country preserved from deterioration. A breed of small ponies, widely diffused, termed Tattoos, are in great estimation by the common people for their hardiness and easy subsistence.

Turning to Europe, the horses partake of the mixed lineage and character of the inhabitants. Northward and westward of the great chain of the Caucasus extend the gigantic dominions of Russia in Europe, comprehending the countries inhabited of old by the Sarmatians, and other warlike nations of herdsmen and soldiers. The horses of these countries are hardy, muscular in their limbs, and capable of enduring great labour and privations. The finest of these races are in the countries near the Black Sea, and especially in the Ukraine, a rich and fertile region lying between the Don and the Dnieper. These countries have in various ages poured their swarms of emigrants and conquerors westward or southward, carrying with them their horses, the great engine

HISTORY.

the South Britons, long harassed by the inroads of the barbarous tribes of the north, called to their assistance a rude nation of soldiers and pirates established in the country north of the Elbe, now termed Holstein. The Saxons appear to have possessed something of that love of the Horse which distinguished all the nations of the Gothic descent. During their long dominion in Britain, the culture of the Horse was not wholly neglected. Coincidently in time with the Saxons in England, the remnants of the Britons existed in Wales, and preserved a brave independence in the mountains and fastnesses of that country. They preserved the native horse; but it does not appear that they ever made the least figure as horsemen, in which respect they resembled other Celtic nations who have occupied countries of mountains. Five hundred years after the Saxons had set foot in Britain, another nation still more devoted to the Horse occupied the country. WILLIAM of Normandy brought with him a warlike cavalry, to whose superiority he was mainly indebted for the victory which gained him the crown. His own charger in the field of Hastings, we are told, was a Spaniard. His barons and vassals, amongst whom the wretched kingdom was partitioned, carried their Norman passion for the Horse to their newly-acquired possessions, and the barbarous successors of KING WILLIAM have left us in innumerable records the evidence of this passion. War and the chase occupied the thoughts of these barbarians, and the Horse was the instrument by which their desires could be fulfilled. Then, too, was the age of heavy armour; and powerful horses fitted to bear the knights and men-at-arms were necessarily sought for. The communication with France gave new facilities to the acquiring of the horses of the Continent. KING JOHN, during his troubled reign, found time to devote his attention to the improvement of the native Horse. He imported at one time a hundred stallions from Flanders. EDWARD II. imported horses from Lombardy; and EDWARD III. took yet more active means to obtain the horses of foreign countries. The annals of his reign show that he was indebted in large sums to the PRINCE of HAINAULT and other powers for horses obtained for the supply of his cavalry. He devoted the sum, great in those days, of 1000 merks for the purchase of Spanish stallions. While eager to avail himself of foreign horses to improve the native races, and pursue his wars, he resolved that other countries should not reap a corresponding advantage. He prohibited the exportation of horses from England under heavy penalties, and succeeding princes continued the system. Even during the reign of ELIZABETH, it was a felony to carry horses from England to Scotland. In these ages, then, it appears that not only were the larger horses fitted for heavy armour and the tournament brought into England, but by degrees the lighter and more active horses of the countries of the Mediterranean. The gradual decline in the use of heavy armour necessarily led to this result. HENRY VIII. was the last of the English kings who maintained the usages of chivalry. But even he saw the superiority of the finer horses of the South and East, and imported them in some numbers from Turkey, Naples, and Spain, for the improvement of the royal stud. Yet, with all the inconsistency and stupid barbarity of his character, he determined to keep up the size of the great horses of England. He enacted that all his prelates and nobles, "whose wives wore velvet bonnets," should keep stallions for the saddle at least fifteen hands high. He caused an act to be passed that all stallions found on commons below a certain size should be confiscated, and that any mare or filly not likely to bear foals of a reasonable size, or to do profitable labours, should, at the discretion of the drivers of the commons, be killed and buried. These monstrous edicts, could they have been carried into effect, would have thinned the numbers of useful horses in England, already reduced by the destructive wars of the houses of York and Lancaster. So great had been the decline in the number of horses in England, that QUEEN ELIZABETH could only muster about 3000 cavalry when the terrible Armada of Spain threatened her kingdom with destruction. Contemporary writers give us no high idea of the English horses at this period. They are described as strong and sturdy indeed, but as fit only for draught. The coarse cart-horse form was the prevailing one even for horses employed in the chase. We see then that, up to this period, no very great change had taken place in the general character of the horses of England. By the foreign importations, indeed, a class of horses had been formed called Running horses. These were not exclusively devoted to the race, but were merely distinguished for a somewhat superior power of speed. During the reign of ELIZABETH, the use of heavy armour went gradually into disuse, notwithstanding the jousts and sports of the tilting-yard, which were still eagerly pursued. When JAMES I. ascended the throne, these sports were in the wane, and he afforded them little support. JAMES had no fondness for warlike exercises. He is said to have observed that he loved armour, because it both prevented the wearer of it from being hurt himself and from hurting others. He, however, gave great encouragement to a sport which has exercised an important influence on the characters of the Horses of the country. This was the Horse-race, which laid the foundation of a system by which a breed of horses was formed solely for running. The system was perfected in the reign of CHARLES II., and from this period a vast care has been bestowed in breeding a race of horses exclusively devoted to the Course. This has been effected by mixing the blood of the horses of the warmer countries with that of the horses of England, and breeding from the best of the mixed progeny, or, in other words, by a system of crossing. The horses imported were chiefly from Africa, from Asiatic Turkey, and ultimately from Arabia. The Barbs came generally from Morocco and Fez, and the Turks from Smyrna and other ports of the Levant; the Arabs generally from the deserts adjoining Syria. From the reign of KING JAMES to that of QUEEN ANNE, in

THE SOUTH DOWN BREED.

PLATE XIV.

RAM, a Four-Shear Sheep, bred by JOHN ELLMAN, Esq. of Glynde, in the County of Sussex.

PLATE XV.

EWE and LAMB, bred by THOMAS ELLMAN, Esq. of Bedingham, from a Ewe bred by the late Mr ELLMAN of Glynde.

Of the breeds of Short-woolled Sheep which formerly inhabited the mountains, downs, forests, and less fertile districts of the country, some, it has been seen, were distinguished by being of small size, by being mostly destitute of horns, and by having the legs and faces white; and to this class is to be referred the beautiful little breed of Herefordshire, and other districts west of the Severn, already mentioned. But another class of breeds, still more diffused, is distinguished by the individuals having the legs and faces of a dark colour, and, in most cases, by the presence of horns in both sexes. Under this class is comprehended the Black-faced Heath Breed, which, it has been seen, inhabits the central chain of bleak mountains which stretch from the borders of Scotland southwards. This breed has large spiral horns, has the face and limbs covered with black hair, and has a moderately short, yet harsh and shaggy fleece. But these characters, proper to the race in the more elevated mountains which it inhabits, yield to the influence of external agents, so that, as we recede from the wilder country, a change appears in the form and aspect of the animals, and in the properties of the wool. Westward of the central mountains, in the counties of Westmoreland and Cumberland, the wool becomes more soft, and the form of the animals less robust. In the Yorkshire Wolds, to which the same race formerly extended, there was an equal deviation from the parent type; and still more in the commons and forests of Derbyshire, Staffordshire, and other inland counties. As we approach to the confines of Wales, the Black-faced breeds approximate more to the characters of the Sheep of the higher Welsh mountains, the wool becoming more soft. Approaching to the Welsh type are the Delamere Forest Breed in the county of Cheshire, and the Morfe Common Breed in the county of Shropshire. The latter inhabited a country of limited extent near Bridgenorth, on the Severn; and, until our own times, was noted for the fineness of its wool. A similar race extended southward through Herefordshire, which, for the delicacy and softness of its wool, was reckoned little inferior to the Ryeland itself. Turning to the great chalk districts of England, occupying the south-eastern parts of the island, there were likewise numerous varieties of Short-woolled Sheep, in some of which the horns, and even the dark colour of the face and limbs, disappeared. In this class are the Old Norfolk, still inhabiting the heaths of Norfolk and Cambridge, the Old Wiltshire, Old Berkshire, the Hampshire, and numerous minor varieties, which formerly possessed the various commons, and heaths of this part of England. But, of all these varieties, now the most important and generally diffused, is that which inhabits the range of chalky hills of Sussex, commonly termed the South Downs.

The South Downs of Sussex consist of a range of low chalky hills, of five or six miles in breadth, stretching along the coast upwards of sixty miles, and passing into the chalky lands of Hants on the west. In contact with this range of hills is a tract of low cultivated ground, which is usually connected with the Down farms, although many of the latter have no vale or flat land attached. The herbage of these hills is short, but well adapted for the keeping of Sheep, of which vast numbers have, in every known period, occupied the pastures. Whilst the dryness of the air, the moderate elevation of the land, and consequent mildness of the climate, are all eminently favourable to the rearing of a race of Down or Mountain Sheep, the contact of the cultivated country affords the means of supplying artificial food in due quantity. It is this combination of favourable circumstances which has rendered these calcareous hills capable of supporting a greater number of Sheep than perhaps any tract of similar fertility in the country, and has afforded the means to the breeders of applying the resources of artificial feeding to their improvement. The original breed of the Sussex Downs was not superior to that of many other districts of the chalk-formation; but the means of supplying the animals with artificial food, which the geographical situation of this long and narrow chain of hills in contact with the richer country afforded, aided the breeders in applying to the improvement of the race a system of breeding and feeding, which has rendered the South Down Breed the most esteemed in the countries suited to it of all the Short-woolled Sheep of England.

The native breed of the South Down hills was of the smaller kind of Sheep, with light fore-quarters, narrow chests, long

THE SOUTH DOWN BREED.

necks, and long, though not coarse limbs. The wool was short, fine, and curling, although not equalling in delicacy and softness that of the White-faced hornless breed of the western counties, nor even that of the Black-faced varieties of the older forests and commons. Both sexes were destitute of horns, at least up to the times of which we have any records; but it is probable that the older race was possessed of horns, like other varieties inhabiting the same kind of country. The faces and limbs were covered with black hair; and a tendency existed in the entire fleece to assume the same colour.

The modern South Down Breed is destitute of horns in the male and female, has the face and legs of a dusky grey, and has the body closely covered with short and curling wool. While the general form of the older breed has been preserved, the too great lightness of the fore-quarters has been corrected, the chest has been widened, the back and loins have become broader, and the ribs more curved; and the trunk has been rendered more symmetrical and compact. The limbs have become more short with relation to the body, or, in other words, the body has become more large with relation to the limbs. The neck retains the arched form characteristic of the older race, but has become more short. The wool comes well forward upon the face, and terminates in a tuft on the forehead. The animals are docile in their tempers, and suited to the husbandry of the fold, which is yet generally pursued in the Downs. They are capable of subsisting on the short herbage of the drier soils, and yield mutton which has always been held in great estimation. The wethers are usually fattened after having completed their second year, although individuals of superior flocks are often ready at the age of about fifteen months; whereas the wethers of the older breed were rarely killed until they had completed their third, or arrived at their fourth year.

It is to the effects of careful culture under favourable circumstances, that the modern South Downs owe the superiority which they have acquired over all the other Short-woolled Sheep of the midland and southern counties of England. With the advancement of tillage, and the larger production of turnips and other succulent plants, the breeders of Sussex had the means of treating their animals well while advancing to maturity; while increased attention was given to the selection of the breeding parents, and to the consequent calling forth of those properties of form which evince the tendency to arrive at early maturity of muscle and fatness. The improvement of the South Down Breed began about the period of the American War, but it received its chief impulse with the commencement of the contest with the French Republic, and has continued progressive until the present time. Amongst the individuals most distinguished as the improvers of this breed was the late JOHN ELLMAN. This gentleman began his important experiments about the year 1780, when he acquired possession of the farm of Glynde, near Lewis, in the county of Sussex. He remained in this farm more than fifty years, during which period he directed his attention, in an especial degree, to the improvement of the native Sheep of the Downs. He pursued his system of progressive change with judgment, perseverance, and zeal; and he must be regarded as one of the most skilful and successful breeders whom this country has produced. He displayed none of the too narrow selfishness which, it is to be regretted, appeared in the proceedings of his distinguished contemporary Mr BAKEWELL. He freely communicated the details of his valuable practice, and showed himself to be entirely exempt from illiberal prejudices. He did not experience the necessity of creating, as it were, a breed, but was contented to adopt the basis which was afforded him in the one already naturalized in the Sussex Downs. He did not carry any of his principles of breeding to an extreme, but acted under the guidance of temperance and judgment. He sought for the properties of health and soundness of constitution, as well as for those of external form, and facility of fattening; and therefore he did not, like BAKEWELL, confine himself rigidly to the blood of his own stock, but resorted to others, that he might infuse fresh vigour into his flocks, and prevent them from becoming too delicate. His aim, in short, was the really useful; and, though he reaped the due reward of his enterprise and skill, it was never obtained by arts of any kind, by deception, or useless ostentation. His character throughout was one of sincerity and manly simplicity; and it is pleasing to add, that he closed a long and honourable life respected and regretted by all that came under the influence of his social virtues. He died in 1832, having entered into his eightieth year.

Contemporaries and successors of Mr ELLMAN have pursued with deserved success the cultivation of the South Down Breed, which may now be said to be brought to all the perfection with respect to early maturity and fattening power, of which it seems to be susceptible. The system of selling and hiring out rams was early adopted, and is now extensively pursued by eminent breeders, who devote attention to the rearing of rams as an especial branch of their profession. This is a division of labour highly conducive to the perfecting of the breed, and the extending of it in its state of purity and highest cultivation to different parts of the country. But the breeders of rams naturally rear the animals under favourable circumstances with respect to the supplies of food, and thus a tendency is produced to an enlargement of size beyond that characteristic of a breed suited to a district of downs and short herbage. The appropriate localities of the South Down Breed are those which are suited to the lighter kinds of Sheep. To the richer and moister plains are adapted other breeds, which produce a long and heavy fleece, and are the native inhabitants of districts of abundant herbage. Such are the Leicester and other varieties of Long-woolled Sheep, to be afterwards described. Doubtless, the South Down Breed may, by the stimulus of artificial food, and by being naturalized in a country fertile in grasses,

become as large as the Leicester and other Long-woolled breeds of the plains; and it has been long making progress to this condition in the hands of the principal Sussex breeders. But the change is one which, in proportion as it may adapt the breed to a richer country, may render it less suited to those more dry and steril tracts over which it has been spread, and in which hardiness and soundness of constitution, and the capacity of subsisting on scanty food, are properties to be regarded, as much as the disposition to arrive at early maturity and fatten quickly. Nevertheless, the past efforts of the Sussex breeders to improve the breed, by rearing it in a more artificial condition than is suited to it, have hitherto been eminently successful in rendering it of more economical value. The earlier improvers of this breed paid especial attention to the fineness of the wool, which then bore a high price for the purposes of the clothier; but attention having been insensibly directed to other properties, the staple of the wool became longer, and the filaments less fine, and now, by changes in the demand, from causes to be immediately adverted to, the relative value of this kind of wool greatly declined; and, in the cultivation of the breed, the production of fine and delicate wool is every where regarded as secondary to the properties of form, and the value of the animals for food.

The South Down Breed has spread over a great tract of country, and either superseded the pre-existing varieties, or been so mingled with them in blood, as to have modified all their characters. But it is in an especial degree in the countries of the chalk-formation that it has been generally established. It has superseded the ancient breeds of Berkshire, Hampshire, and Wiltshire; and, extending into the counties to the westward, has greatly circumscribed the limits of the horned Dorsets. It is spread from the wastes of Surrey to the heaths of Norfolk, displacing the ancient breeds, or mixing with them, so as to obliterate their former distinctions. It has spread beyond the countries of the chalk-formation, although in decreasing numbers. It has extended into Herefordshire, and partially into Devonshire and the lower parts of Wales, and northwards even to Westmoreland and Cumberland. But, beyond the limits of the countries of the true chalk, or of the calcareous district in contact with the chalk, it is only found occupying tracts of narrow extent, or is employed as a means of improving the flocks of the heaths, commons, or other tracts, which are still occupied by races of smaller short-woolled Sheep. It has been introduced into Scotland, and partially cultivated with some success; but it has made no general progress in that country, and does not seem calculated to displace the hardier mountain breeds already acclimated.

The wide extension of a breed so greatly improved as the South Down, must be regarded as having been in a singular degree beneficial. Although itself the native of a dry country, and therefore, it may be supposed, imperfectly suited to a humid soil and atmosphere, yet its range is not confined to very narrow limits. It is naturally of a healthy constitution, patient of scanty herbage, and, from the closeness of its fleece, fitted to resist changes of temperature. Further, like every race of Sheep, it possesses the faculty of becoming inured to new conditions of soil and temperature; and experience accordingly has shown, that it may be gradually naturalized in countries very different from that from which it has been derived. By crossing, it can be readily amalgamated with all the varieties of Sheep which can be referred to the Black-faced Heath Breed as their type; and it can be made to improve the Black-faced Heath Breed itself in situations in which hardiness and adaptation to a rude climate and country are not more to be regarded than the improvement of the form and fleece.

The wool of the South Down Sheep weighs, when washed, about 3 lb. the fleece; but, in some of the more highly-fed flocks of the lower countries, its weight is now 4 lb. or more. The staple, or length of the filaments, is from $2\frac{1}{2}$ to 4 inches, while that of the older breed rarely exceeded 2 inches, and more frequently fell short of that length. The wool, although fine and short, is somewhat harsh and brittle, and never was well fitted for the manufacture of the finer woollen cloths, requiring always a large admixture of the softer wools of home or foreign growth. But the war with France having at length excluded the manufacturers of England from most of the foreign markets which supplied the raw material, the woollen fabrics of the country were chiefly prepared from native wool. This circumstance gave a high relative value, not only to the South Down wool, but to all the finer and shorter kinds produced in the country, as that of the Norfolk, the Wiltshire, the Dorset, the Rycland, the Cheviot, and the other varieties of Short-woolled Sheep which then abounded in the country. But, when the memorable events of 1814 opened all the ancient marts of trade, wool of superior fineness was obtained in the quantity required from the countries of Europe in which the Merino race was cultivated, and, after a time, from the boundless wilds of the Australian colonies. This produced an immediate change in the market-price of all the finer wools formerly employed in the manufacture of woollen cloth, and at length caused them to be applied to other purposes. In place of being used for the manufacture of woollen cloth, they were extensively employed for the lighter and looser fabrics classed under the name of Worsteds. This difference in the destination of the shorter wools, coupled with the diminution of the market-price, has produced an important change in the cultivation of Sheep in this country. It has led to an extension in the number of the Long-woolled Sheep, and a decrease in the number of those cultivated for the fineness of their wool; and, in the case of the latter, has caused attention to be directed rather to the weight than to those properties of the fleece which fit it for the manufacture of cloth. All the lesser kinds of Sheep, as the Ryeland, Morfe

THE SOUTH DOWN BREED.

Common, and Dean Forest breeds, producing a fine and delicate wool, are either extinct, or have lost their distinctive characters by intermixture with other races; and throughout entire tracts of country, which, not more than twenty-five years ago, were occupied by Short-woolled Sheep, not a single flock of this kind is to be found. The South Down Breed, it has been seen, has been extensively substituted for many of the older breeds; but the Long-woolled Sheep of the lower country have likewise been progressively extending, and have either displaced the Short-woolled varieties altogether, or, by means of crossing, changed their character with respect to the production of wool.

WOOL.

The Hair of animals, of which wool is a variety, springs from the cellular tissue, immediately underneath the corion or true skin. It grows from a soft pulp included in a little sac, into which nerves and bloodvessels pass from the surrounding tissue. It extends outwards, passing through the true skin and epidermis in the form of a fine tube, the interior of which is filled with pulp. It possesses externally a scaly texture, the laminæ pointing in one direction from the root to the tip, and is protected by an unctuous secretion. Wool is chiefly distinguished from hair by its growing in a spiral form, by its greater softness and pliability, and by a property to be referred to, by which the separate filaments adhere under the influence of moisture and pressure. On account of these properties, wool is greatly better suited than hair for being spun and woven into cloth.

Hair is often largely mixed with the wool of Sheep, and, in the wilder races, forms the principal part of the animal's covering. By frequent shearing of the fleece, the hair diminishes in quantity, and the wool is proportionally developed, until at length, under the influence of continued domestication, the essential covering of the animal becomes wool, of greater or less tenuity and softness. In the cultivated Sheep of England hair covers only the face and part of the limbs, but often hairs are mixed with the wool of other parts of the body; and this, as it regards the manufacture, is an imperfection, and it is a process of art to separate the intermixed hairs from the wool.

Generally speaking, the wool of Sheep in these latitudes is yearly renewed, the older part falling off at the commencement of the warmer season, and it is then that we anticipate the process of nature by shearing the fleece. But the wool may be shorn at any time, and, like hair, will grow again. In this country, however, it is never thought beneficial to shear the wool more than once in the year, and this at the commencement of the warmer season, when the older portion is about to fall off. In certain parts of this country, favourable with respect to the mildness of the climate, the wool of lambs is shorn; but the practice is unsuited to a cold climate, and is only, therefore, very partially pursued. The wool of lambs employed in the manufactures of this country is chiefly derived from the skins of animals that have been killed for the butcher, though largely, also, from the importation of the skins of lambs with the wool from other countries.

The wool of different races or families of Sheep is greatly distinguished by the length of the staple and the tenuity and softness of the filaments. And not only does the wool of different Sheep differ in these properties, but the wool of the same individual is more or less soft and fine, according to the parts of the body from which it is derived. In general, the wool becomes less fine, proceeding from the neck towards the extremities, so that the wool on the breech is more coarse than that on the back and sides. It is a process of art to separate the finer from the coarser parts in an individual fleece, and this into such number of divisions as suits the nature of the wool, or the manufacture intended. The number of these divisions varies from six to ten, or, in many cases, to a greater number. The fleece being unrolled, the workman at his table, with a clear light thrown upon him, and guided by the eye and touch, culls out the several locks, as distinguished by the fineness of the filaments. These being put into baskets placed around him, are afterwards collected into distinct packages, and thus the manufacturer is supplied with wool of the peculiar quality required. This operation is sometimes performed under the direction of the manufacturers themselves, but more commonly by a class of persons termed wool-staplers, who purchase the raw material from the grower, and dispose of it after being assorted to the manufacturer. The operative part of the process is one of great nicety, to which men are trained, as to the other mechanical arts, by a regular apprenticeship.

Wool is eminently suited to the reception of colours by the dyeing process, excelling in this respect silk, and much more cotton and all other vegetable substances. White wool receives the colouring matter more readily than black, the finer parts of the fleece more readily than the coarser, and the wool of healthy Sheep more readily than that of those which are unhealthy. The natural colour of wool is often black, and black filaments are frequently mixed with the white. This intermixture is regarded as a great defect, the black filaments being unsuited for the reception of the brighter and more delicate colours in dyeing. This intermixture of black wool with white is most apt to take place in the case of the breeds of Sheep whose legs and faces are covered with dark hair.

WOOL.

The kinds of wool, as distinguished from one another by the length of the staple, are termed Long and Short. The long wools are the produce of the larger Sheep of the plains, and possess a staple of seven inches and upwards. The short wools are the produce of the smaller Sheep of the mountains, downs, and generally of the drier or less fertile country, and have wool of a staple from two to four inches.

Wool is prepared for being spun into thread by two processes entirely different in the effect and mode of execution: the first is termed Combing, and prepares the wool for being spun into worsted yarn, which is the kind of thread employed for the stuffs called worsteds; the second is termed Carding, and prepares the material for being spun into woollen yarn, which is the kind of thread suited for the manufacture of woollen cloths.

The process of combing consists in combing or dividing the wool by means of fine steel teeth, acting in the manner of the common comb on knotted or entangled hair. The comb is kept hot, and the wool is oiled, in order that it may pass more easily between the teeth of the comb. In this manner, the filaments are smoothed and arranged side by side, somewhat in the manner in which the fibres of hemp and flax are assorted for spinning, and being then drawn out to the degree of tenuity required, are twisted or spun, forming worsted yarn. The tenuity given to these threads is of every degree, suited to the various kinds of manufacture, from the thickest and stoutest substances, to the most delicate articles of clothing and dress. The fineness to which woollen threads can be spun almost exceeds belief. It has been computed that, in ordinary spinning at Norwich, a pound of wool may be extended to 13,440 yards, or in superfine spinning, to 39,200 yards, or about 22¼ miles, so that a fleece yielding 7 lb. would produce a thread of 155 miles in length: and even this degree of fineness can be greatly exceeded. M. Luccock mentions a case, in which, from 1 lb. of wool, the produce of a sheep reared by Sir Joseph Banks, a female spun 168,000 yards of thread, or 95½ miles. The exportation of worsted yarn was formerly prohibited by law; it is now permitted, and forms an increasing and profitable branch of trade.

The preparation of wool by carding, for the manufacture of woollen cloth, is performed in an entirely different manner. In this process, the filaments are not kept entire and laid parallel to one another in the direction of the thread to be spun; but they are torn and broken into innumerable minute fragments, and then mingled together in every direction. By the spiral growth of wool, as distinguished from that of hair, each filament, or portion of a filament, is curled at its extremity, and the broken or divided parts tend to hook themselves to one another, so that, when a portion of wool is forcibly broken into pieces, the fragments remain loosely adherent to one another, and may then be twisted or spun. The operation of breaking the wool by means of the card is performed by machinery; but the principle of the process will be understood from the following explanation:—

Let there be supposed to be a board with a handle attached, and that in this board is fixed a great number of crooked wires, all bent in one direction. These wires are then partially filled with wool. Another board with the same kind of wires or teeth is then pulled in such a manner as to pass through amongst the teeth of the other board. By the repeated action of these two cards, the wool is broken into minute fragments, which, from the curling property of the wool referred to, hook themselves together, and are formed into long rolls or cardings, which, being drawn out and twisted, form the thread.

This peculiar mode of forming the thread of woollen yarn has relation to the kind of fabric to be formed, namely, woollen cloth, which is a substance of a dense and close texture; while the fabrics formed of worsted thread are of a lighter and looser texture. This denser consistence is given to the woollen cloth by means of the property termed Felting.

The property of felting consists in a tendency of the filaments of wool to unite or adhere when moistened and compressed. By compression in the moist state, a mass of wool becomes a dense body, as we see in the case of hats or beavers, which are formed of the wool and down of animals subjected to pressure and moisture. Nay, by this process alone, without the intervention of spinning and weaving, cloth can be formed. Thus, in ancient times, and amongst certain people of the east at the present day, caps, mantles, blankets, carpets, and the covering of tents, are formed by felting alone. In England, recent experiments have shown, that tolerably good cloths, both with respect to durability and fineness, may be formed by this means. The property appears to depend on the form of the filaments before referred to. Each filament is seen to be notched all round with minute serrations, formed by fine sharp laminæ, proceeding from the pile like the leaves of an artichoke, all pointing in one direction from the base to the extremity. Now when, by the process of carding, the filaments are broken into minute fragments, the parts are intermingled in every direction, and the serrations tend to lock themselves into one another by meeting in opposite directions. But when wool is prepared by combing, the serrations lie in one direction, and do not in the same degree tend to lock themselves together.

In the manufacture of woollen cloth, the felting process is not called into operation until the threads are spun and woven, and in the preparatory process the tendency of the filaments to cohere is prevented by oiling the wool. But when the cloth is woven, it is subjected to a process termed Fulling, for the purpose of freeing it from the oily matter. The fulling is performed by

machinery, and consists in pressing the cloth in water along with clay, the aluminous matter of which combines with the oil of the cloth. It is in undergoing this operation that the threads and filaments cohere together, so that the cloth becomes more thick, and does not unravel when cut.

From this account, it will be seen that, while the facility of felting is an important property in the case of all wool designed for the manufacture of cloth, and prepared by the card, it is not required in the case of wool intended for worsteds, and prepared by the comb. Certain kinds of wool have this property in a higher degree than others, and are consequently better adapted for the making of woollen cloth. In general, the shorter kinds of wool having also fine filàments, are those of which the laminæ are most numerous and distinct, and are those accordingly in which the felting property is the greatest. The property, however, is not in proportion to the tenuity of the fibres, since certain short and slender wools possess it in an inferior degree. Of all known wools, that derived from the Merino race possesses the felting property in the greatest perfection, and is accordingly the best adapted of all others for the making of cloth; while the long and tough wool of the larger Sheep is imperfectly adapted to the preparation of woollen yarn, and accordingly is never prepared by the action of the card. It is, therefore, the short and felting wools which alone are fitted to this process; and until a period comparatively recent, they were, with few exceptions in this country, never prepared by any other means. This gave rise to a popular distinction, long in use, and not yet entirely abandoned. The long wools were termed Combing wools; the short, Carding wools. But these designations are no longer applicable. By improvements in the woollen manufacture, the means have been found to prepare the shorter and more delicate wools by the comb as well as by the card; and now a great proportion of all the short wools of this country is converted into worsted yarn. The South Down wool, which was formerly, and until a recent period exclusively, prepared by the card, is now in a still larger degree prepared by the comb for the manufacture of worsted. It has fallen in price, indeed, from its being no longer used for the finer cloths, but the range of its utility has been greatly extended. Thus it is also with the wool of the Cheviot, the Norfolk, and other Short-woolled breeds; and there cannot be a doubt, that, although individual interests may have been injuriously affected by the fall in the price, the nation has been benefited by an extension of the purposes to which this class of wools can be applied. Nay, the general good of the wool-growers themselves has been eminently served. The demand for their commodity has become more steady, and the trade been placed on a surer basis, by being founded on an enlarged demand, and supported, not by artificial regulations and fiscal restraints, but by an extension of the woollen manufacture. Soon after the peace of 1814, alarm was raised amongst the British wool-growers lest the price of the raw material should be reduced below what they chose to term a remunerating price. The government of the day, in an evil hour, yielded to the influence exerted, and in the year 1819 heavy duties were imposed on foreign wool, with the design of keeping up the price of the native produce, under the specious pretext of encouraging British agriculture. In six years this monstrous law was repealed, but not until it had done all that the shortness of the time allowed for establishing the manufactures of foreign rivals, and giving them the ascendency in the markets of Europe.* But the price of short wool continuing to decline, renewed efforts were made by the wool-growers to induce the Legislature to restore the former restrictions. This, in 1828, led to a parliamentary inquiry, when a mass of evidence was produced, proving beyond all cavil the danger and evil of interfering, through the medium of duties and fiscal regulations, with raw material of a manufacture which could only be sustained by freedom of trade and production. It was proved by the concurrent testimony of witnesses from all parts, that the cloth made from British wool alone could no longer find a market in Europe, and was even deemed too coarse for the clothing of the labouring classes at home; and that, without a free command of the wool of other countries, a great part of the woollen export trade of Great Britain would be for ever lost.

It may well excite surprise that any class of men amongst us should have dared to demand that the manufacturers of the country should be prevented from procuring the materials of their manufacture where these could be obtained cheapest and best; nay, should not only be prevented from exercising this natural and necessary right, but compelled to take from the wool-growers at home, and at a price enhanced by fiscal regulations, what was absolutely unsuited for the purposes of commerce. The disgraceful law of 1819 had already shown, that, by refusing to take the wools of other countries, we depressed the price of the raw material abroad, and thus gave an indirect premium to the foreign manufacturer; and that by forcing our manufacturers to employ wools of inferior quality and higher price, we directly unfitted them for competition in the general market of the world. It was of the repeal of the law of 1819 that the wool-growers thought fit to complain, as having produced the depreciation which had taken place in the price of the clothing wools, not perceiving that, in admitting the depreciation from this cause, they admitted at the same time the magnitude and injustice of a burden, which had been so heavily taxing the manufacturing industry of our own country, and fostering that of others.

---

* Remarks by the Author *aliunde* on Wool.

WOOL.

What, it may well be asked, did the wool-growers hope for by forcing up the price of wool by such expedients? To the mere occupier of the land a forced rise of the raw material could only be beneficial during a passing term. On the termination of the lease, the benefit would go to the owner of the land in the shape of increased rent. Thus, in order to raise the rent of land, the wool-growers were prepared to lay a tax on every consumer of wool, that is, on every individual in the kingdom, and to cripple the trader in his means to maintain his equality in the foreign markets. It is known that, in these times, the great danger to the manufacturing prosperity of the country, is the progress of other nations in those arts in which we have hitherto excelled, and that our relative superiority in such arts can only be maintained by our being enabled to supply the productions of them on the cheapest terms; and granting that the wool-growers could, by means of an ill-judged monopoly, have forced up for a time the price of the native wool, would they not thereby have abandoned a yet more safe and permanent means of effecting the end, namely, that which would have resulted from increasing the demand for the manufactured commodity? The injurious measure contended for was, however, happily resisted, never, it is to be trusted, to be brought forward again; and the trade of wool, by being thrown open to the world, has been placed on a far surer foundation than if it had been made to rest on the narrow and insecure basis of monopoly and restriction.*

The woollen trade of England has been cherished by the laws from early times, and has been long regarded as a main branch of the industry of the country. The Romans extended and perfected the arts of spinning and weaving in Britain, as in other of their provinces, and taught the natives to clothe themselves after the Roman fashion. They established factories, of which that at Winchester was long distinguished. But the garments and woollen fabrics of the people were for the most part spun and woven by themselves, under that system of domestic manufacture which is the first in order of time in all rude countries. The employment of spinning and weaving was chiefly devolved on females, whence the term Spinster, which has been in use from time immemorial. EDWARD THE ELDER, who died in the year of our Lord 925, married, we are told, the daughter of a shepherd or countryman of mean rank; and being desirous that his children should have a princely education, "he sette his sons to scole, and his daughters he sette to woll werke, takyne example of Charles the Conquestour." †

In the succeeding times of the Norman princes, the state of the woollen trade is made known to us by the records of customs, subsidies, fines, and fiscal regulations. Wool formed the chief revenue of the prince, and the subject of continued exaction on the people. Sometimes the woollen subsidies were paid in kind, but more generally in heavy duties laid upon the sale or exportation of the wool. In these early times the raw material alone was exported. It was carried chiefly to the Low Countries, where it was manufactured into cloths and worsted stuffs by the Flemings, then become the great weavers of Northern Europe. These industrious people maintained their superiority in the woollen manufacture for many ages, and during this period acquired that wealth which enabled them to render their country the most populous and fruitful in Europe. Their chief dependence for the raw material was on England, which alone could supply them in the due quantity with the wool which their innumerable looms required. They returned the manufactured commodity at a high price; and yet the trade was mutually beneficial, and calculated to advance the industry of the ruder, as well as the more cultivated people. But EDWARD III., soon after his accession to the crown, resolved to wrest the woollen manufacture as much as possible from the Flemings, and establish it at home. He encouraged the resort of foreign artisans to England; and, availing himself of certain discontents in Flanders, he invited over weavers, dyers, fullers, and others, and established them in different parts, affording them protection and privileges. He caused it to be enacted, that all merchant strangers and denizens might buy and sell within the realm, freely and without interruption, and that all foreign cloth makers should be received from whatever foreign parts they came. To encourage the home manufacture he even resolved to prevent the exportation of English wool, and the importation of foreign cloths. At a parliament held in March 1337, it was enacted that no wool of English growth should be transported beyond sea, and that none should wear any cloths made beyond sea. But this statute soon gave in to the exigencies of the exchequer, and the temptation of imposts, licenses, and fines.

This prince has been regarded as the great founder of the manufacturing prosperity of England,—with what justice, let the records of his exchequer, and the complaints of his harassed subjects, declare. He bestowed his favour upon the woollen trade, it is true, but merely as an engine for extorting money; and in no previous reign had the exactions on this part of the industry of the country been more grievous. We are amazed at the sums he drew from forced subsidies, customs, fines, and otherwise. On one occasion having, without the sanction of Parliament, and contrary accordingly to Magna Charta, laid a heavy impost on all wool sold within the kingdom, the Commons agree to give him 30,000 sacks of wool for his relief, on condition that he should keep to the customs ordained by law; and the Lords, after humbly praying "that the great wrong set upon wool be revoked," offer him in return the

* Author's Remarks on Wool.

† FABIAN'S Chron.

tenth sheaf of all the corn of their demesnes, and the tenth fleece of wool, and the tenth lamb of their own stores, to be paid within two years. The clergy sometimes assisted him, as, on one occasion, by raising for him 20,000 sacks. When these woollen subsidies were to be levied, care likewise was used that the king's market was not interfered with. Proclamation was sometimes made, "that no person buy any wools before the king be served, whereunto all customers shall have an eye."* On one occasion, the king having resolved to export 20,000 sacks on his own account, his ready Parliament enacted that no man before that time should pass over any wool on pain of treble loss, life and member!

Such was the protection afforded to the woollen trade on the part of our earlier governments. By the increasing power of the people, the exactions of the prince were better resisted in the following reigns; but yet we recognise little of just and liberal principles in the legislation of the times. Guilds and corporations with exclusive privileges were multiplied, and thus monopoly crept into all the departments of the woollen trade; foreigners were treated with jealousy and injustice; and restrictions were extended to every branch of the manufacture. Still, the woollen manufactures of the country continued to extend; but it was not until the more settled times of HENRY VII. that cloth began to be exported in any quantity. But how little of this advancement was due to the wisdom of the laws, may be seen from the statutes, which were before and afterwards enacted. Certain towns and districts were frequently allowed the exclusive privilege of manufacturing and selling certain kinds of goods. An act of HENRY VIII. declares, that worsted yarn is the "private commoditie" of the city of Norwich, and county of Norfolk; and therefore enacts "that none shall be transported, nor shipped to be transported, nor bought, nor caused to be bought, by any but weavers in the said city or county." Another act recites, that "the city of York afore this time hath been upholden principally by making and weaving coverlets, and that the same have not been made elsewhere in the said county till of late, that this manufacture had spread itself into other parts of the county, and was thereby debased and discredited;" and therefore ordains, "That none shall make coverlets in Yorkshire but inhabitants of the city of York." An act of the same prince revives certain older laws against enclosures, and another limits the number of Sheep which any one shall keep, on account, it is stated, of the rise in the price of victual and clothing. By an act of WILLIAM and MARY, it is ordained that no clothier out of a burgh, market town, or corporate town, shall have above one loom; that no weaver dwelling out of a city shall have above two looms; that no weaver shall be either tucker, fuller, or dyer; that no fuller or tucker shall keep a loom; that no person shall cause any white broad woollen cloths to be made but in a city, or where such cloths have been made for the space of ten years before; that no weaver dwelling out of a city shall have above two apprentices at one time; and that none shall set up weaving unless he have been apprentice to, or have exercised the same seven years, and so forth. Absurd as are these, and many more of the laws of the times, the woollen trade and manufacture had been continually extending; and, in the glorious reign of ELIZABETH, became one of the main sources of national opulence and power.

With the progressive increase, during the preceding reigns, of the foreign export trade in manufactured goods, the exportation of raw wool had been gradually declining, and became continually less a means of supplying the wants of needy princes. ELIZABETH, with a provident sagacity, did not prohibit the exportation of the raw material; and thus, while she supported the manufacturer, she encouraged the growth of native wool by suffering the growers to send their produce to the most suitable markets. This wise policy had a happy effect; while events arose, in connexion with the melancholy history of other countries, which gave a new vigour to the manufacturing industry of England.

CHARLES V. had succeeded, together with his other fair dominions, to the sovereignty of the Low Countries, then including the Dutch provinces. The doctrines of the Reformation, so well suited to the genius of a frugal and calculating people, had early made a silent progress in the country; but here, as elsewhere, the strength of authority was put forth to repress the spreading heresy. Civil grievances were added to religious quarrels. CHARLES lived to witness and deplore the growing discontent of his once faithful people; but it was reserved for his son and successor PHILIP II. to fan the embers of rebellion into flame, and complete the ruin of his rich and peaceful provinces. The people, who had been termed in contempt Geux, or beggars, by the minions of the Court, assumed, with bitter irony, the wallet and the staff as the ensign of their confederacy, and every where made head against their oppressors. A civil war ensued, rendered horrible by the merciless severity with which it was carried on; by the sacking of rich towns, and other excesses of mercenary soldiers; by confiscations and judicial murders. After a time, ten of the provinces remained subjugated, but seven achieved their independence, and became, under the name of the Seven United Provinces, or Republic of Holland, one of the most powerful nations of Europe. On the death of PHILIP in 1598, the subdued

---

* SMITH's Memoirs of Wool.

provinces enjoyed a kind of repose, but the commerce that made them powerful was gone, and all their arts were in a state of decay. During forty years of war and misrule, multitudes of artisans had migrated with their families to other countries, and in an especial degree to England, where they were received with sympathy and favour. It is supposed that about 50,000 of these unfortunate refugees found shelter in England soon after the first invasion of the barbarous Duke of Alva. They were settled in all parts of the kingdom, and contributed to give that perfection to the English manufactures, particularly of the finer stuffs, in which they were formerly deficient. This, in connexion with the growing commerce of the country, extended the woollen trade of England to every part of the world, and made it be regarded as the most important department of national industry. The illustrious DE WITT, in lamenting the destruction of the woollen manufacture of the Netherlands, first by injurious laws at home, and then by the cruelty of the Duke of ALVA, observes, that afterwards "The English by degrees began to vend their manufactures throughout Europe, and then they became potent at sea; and he who is powerful at sea is a lord at land, and more especially a king of England.—"

During the reigns of the princes of the House of STUART, the woollen trade continued in a languishing condition. The commercial legislation of this period, with respect to wool, was marked by the spirit of monopoly and exclusiveness, a short-sighted regard to little interests, a petty intermeddling with the details of trade, and a jealousy of particular classes, interests, and countries. The Dutch, then becoming a manufacturing as well as a great trading people, were the subjects of especial jealousy and dislike. They had become the principal dyers of Europe. King James I., in the plenitude of his wisdom, resolved to take the process of dyeing into his own hands. He gave exclusive patents to persons at home to perform it, and ordained that no cloth but that dyed in England should be exported. The Dutch and Germans retaliated, and refused to take cloths dyed in England. But jealousy was not confined to aliens. The woollen manufacture had taken root, and was making progress in the Sister Island, when addresses were presented to the King and both Houses of Parliament, "beseeching his Majesty to take effectual measures to prevent the growth of the woollen manufactures in Ireland." The exportation of Irish wool to any country but England was rendered a felony; and the importation of the manufactured goods into England itself was prevented by restrictions equivalent to a prohibition. The exportation, even, of our English wool, was rigidly prohibited; and the protection given to stranger artisans was so counteracted by the miserable laws of corporations, that numbers of the former refugees quitted the country in disgust.

During the reigns of Queen Anne and the two first sovereigns of the House of Hanover the home consumption of woollen goods greatly increased, but the foreign woollen trade remained nearly stationary. During the first part of the reign of George III. it progressively extended, but yet not to a degree corresponding with the increasing wealth of the country. The chief demand was for the West India Islands, and the North American Colonies. About the year 1773, a revolution occurred in manufacturing industry, which may be said to have changed the condition of human society. Machinery was applied to the fabrication of cotton, and the stupendous power of steam was called into more extended action. First came the Spinning-jenny, by which a child could direct a hundred spindles and more, all at a time; then the beautiful Frame of Arkwright, which required merely that the raw material should be supplied in order to be spun into threads of surpassing fineness; then the Mule-jenny; and last the Power-loom, which substituted mechanical for human power in the forming of the cloth. A similar machinery was applied to the spinning and weaving of wool, and the whole processes of the art were changed. The variety, quality, and cheapness of the productions, increased in a wonderful degree; and, notwithstanding of the amazing extension of the use of cotton in furniture, clothing, and dress, the consumption of wool in England has not only not diminished, but is at this time greater than in any former age.

The number of Sheep in the British Islands has been variously computed at from thirty to thirty-five millions. Taking the medium, and assuming the produce, after making allowance for the deficient weight of the wool of slaughtered sheep and lambs, to be $4\frac{1}{2}$ lb. the fleece, the total quantity produced will be . . . . . 146,250,000 lb.

Whereof are exported in the raw state, ...	4,603,799	
Leaving to be manufactured, ...	142,646,201 lb.	
And assuming the price to be 1s. 3d. per lb., the value of the raw material will be . . .	L.8,915,387	11 3
The value of foreign wool imported, 56,700,895 lb. at 2s. 6d., is	7,087,611	17 6
	L.16,002,999	8 9

Supposing, then, the value of the manufactured commodity to be $2\frac{1}{2}$ times that of the raw material, the value of manufactured woollen goods produced in Britain will be L.40,007,448 : 11 : 10.

WOOL.

This great national manufacture supplies a larger internal consumption than takes place in any other country; and affords a surplus, valued at L.6,271,645, besides yarn valued at L.401,188, for an export trade to all parts of the world, being more than one-eighth part of the whole export trade of the kingdom. The woollen trade is therefore of surpassing importance to the nation. It has to contend with the fiscal regulations, and the increasing production and rivalry of other countries; but yet the superior capital, machinery, and industry of the country, and the facilities of an extended commerce, give advantages to the British manufacturer which no European country as yet possesses. The following table, taken from the latest official records, will show the quantities and value of wool and woollen goods exported, and the countries to which they are carried.

Account of the Quantities of Foreign Wool Imported into, and of Foreign and British Wool, Woollen Yarn, and British Manufactured Woollen Goods Exported from, the United Kingdom, distinguishing the trade with each country, in the year 1839.

COUNTRIES.	FOREIGN WOOL.		British Wool Exported.	Woollen Yarn Exported.	WOOLLEN GOODS OF BRITISH MANUFACTURE EXPORTED.						
	Imported.	Exported.			Cloths.	Baizes, and Woollen or Worsted Stuffs.	Flannel, Blankets, and Carpets.	Woollens mixed with Cotton.	Hosiery, Stockings.	Sundry Small Wares, Rugs, Coverlids, Tapes, &c.	Declared Value of British Woollen Manufactured Goods Exported.
	lb.	lb.	lb.	lb.	Pieces.	Pieces.	Yards.	Yards.	Dozen Pairs.	£	£
Russia,	7,966,594	14	4,898	141,934	2,364	45,929	51,310	30,450	228	650	125,524
Sweden,	1,773	...	...	802	271	8,012	4,729	15,960	37	16	16,266
Norway,	...	...	...	561	539	2,899	4,944	2,291	262	289	10,843
Denmark,	634,623	...	...	...	151	502	924	360	53	1	2,072
Prussia,	64,088	...	...	...	42	36	666	670	...	180	646
Germany,	23,837,805	25,380	1,148	1,770,536	31,636	382,731	403,094	334,762	1,073	14,520	816,604
Holland,	299,895	101,262	38,551	723,166	10,303	135,193	171,184	59,391	5,699	7,125	317,838
Belgium,	259,617	275,235	3,625,896	111,746	5,863	58,387	193,080	76,073	3,328	3,270	132,401
France,	83,141	63,859	876,166	153,329	722	22,422	32,201	68,344	340	629	51,492
Portugal, Azores, and Madeira,	1,024,994	...	...	2,540	16,778	44,775	24,667	58,556	283	4,572	194,261
Spain and the Canaries,	2,409,634	...	...	4,360	1,415	9,898	18,008	6,102	80	730	27,523
Gibraltar,	482,057	...	...	6,776	3,150	20,017	11,207	71,955	379	1,817	76,393
Italy,	1,892,057	224	...	30,969	5,236	100,192	59,590	130,386	1,900	11,997	223,694
Malta,	32,918	...	...	...	977	2,574	4,747	8,800	96	1,115	12,210
Ionian Islands,	...	...	...	...	36	500	2,402	191	...	140	1,713
Morea and Greek Islands,	...	...	...	...	2	1	346	...	1	8	74
Turkey and Continental Greece,	1,183,532	...	35,840	...	616	10,349	13,029	8,045	300	1,251	22,181
Syria and Palestine,	...	...	...	...	...	568	250	7,600	...	...	1,268
East Indies and China,	2,103,546	...	...	3,684	58,786	133,693	132,754	48,015	1,084	8,184	530,687
New South Wales,	6,621,291										
Port Philip,	273,572										
Van Diemen's Land,	3,212,698	...	...	159	5,353	13,792	492,430	38,799	11,198	11,629	131,377
Swan River Settlement,	21,213										
South Sea Islands,	2,473										
Cape of Good Hope,	626,214	...	...	...	2,255	5,352	59,140	7,249	1,107	1,938	33,652
Morocco,	455,008										
Other parts of Africa,	1,583										
St Helena,	6,292	...	...	982	1,632	3,860	11,175	900	1,269	2,671	20,349
Mauritius,	2,884										
British Colonies in North America,	1,579	1,508	...	19,455	46,118	75,108	1,053,593	65,444	29,130	33,443	511,190
Brit. Colonies in West Indies,	3,360	...	...	200	4,859	14,886	98,988	60,324	1,611	13,114	84,833
Foreign do. in do.	...	...	...	374	3,371	14,582	171,352	11,030	185	10,290	67,443
United States of America,	149,163	224,431	19,984	324,320	155,797	497,843	2,395,017	1,108,519	109,388	79,229	2,142,352
Brazil,	...	...	...	...	32,675	44,022	129,502	63,609	1,465	21,230	247,869
Mexico,	...										
States of the Rio de La Plata,	236,751	...	...	168	56,611	41,352	112,556	104,457	4,495	26,186	431,085
Chili,	1,339,569										
Peru,	2,149,571										
Isles of Guernsey, Jersey, Alderney, and Man,	16,449	3,136	1,316	24,380	2,893	3,870	129,475	...	32	2,155	37,805
Total,	57,395,944	695,049	4,603,799	3,320,441	450,451	1,693,345	5,782,360	2,388,282	175,023	258,379	6,271,645

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairbairn & Sons, St. John's Sqr.

THE OLD LINCOLN BREED.

Ram, bred by Mr. Jex, St. Jermains, near Lynne, County of Norfolk.

THE OLD LINCOLN BREED.

PLATE XVI.

RAM, Bred by Mr JEX, St Germains, near Lynne, County of Norfolk.

The breeds of Sheep hitherto described are proper to the mountains, moors, downs, and less cultivated districts, and most of them produce a short wool fitted for preparation by the card. The breeds that remain to be described are of entirely different characters, with respect to form and the nature of the fleece. They are of large size, and, until improved by art, of coarse form; and the wool which they yield is long, thick, and tough in the filaments, of inferior felting properties, but tolerably soft to the touch, and rarely approaching to the harsh and wiry character of hair. This kind of wool, from the strength and toughness of its fibres, is unsuited for being broken into fragments by the action of the card, and is, accordingly, never prepared except for worsted yarn, and by the assorting of the comb. If the British Islands are inferior to other countries in the production of the finer felting wools, they are superior to any in the case of those adapted to the worsted manufacture. The long wools of the plains of England have in every known period been of the highest estimation. They were early carried to other countries, and now produce fabrics which are diffused throughout the markets of the world.

The Long-woolled Sheep of England are the natives of the richer plains, although they have long been carried to all parts of the country where agriculture has provided the means of supplying artificial food. The first and most extensive locality of this class of Sheep is the fine tract of new red sandstone which, extending southward from the lower valley of the Tees, forms the fertile valleys of York and Trent; and which, extending from the vale of Trent to the mouth of the Severn, and thence northwards, includes the greater part of the counties of Nottingham, Leicester, Warwick, Worcester, and a part of Stafford and Lancaster; comprehending a tract of the highest fertility with respect to the production of the grasses and other herbage plants. But connected with this tract, as a locality of the Long-woolled Sheep, are districts of the lias and oolite formations, comprehending the counties of Rutland, Northampton, Gloucester, part of Oxford, and others, to which may be added the lower parts of Devonshire, and the valleys of the larger rivers in different parts of the country. The second locality of the Long-woolled Sheep comprehends the flat alluvial tracts of fens on the eastern coasts and the shores of Kent. Conformably to this division, the Long-woolled Sheep may be arranged in two general groups; first, those of the inland plains, represented by the Teeswater, Leicester, and other varieties; and, secondly, those of the fens, and alluvial country, represented by the breeds of Lincolnshire and Romney Marsh.

Of the breeds which have been mentioned, those of the marshes and fens are the most marked, and peculiar in their characters. The rich and marshy tract of land, extending from the Humber southwards, through Lincolnshire into Norfolk, Cambridge, and the adjoining country, is a fitting habitation for the coarser and heavier kinds of Sheep. The lower part of Lincolnshire, accordingly, and the fertile tracts in connexion with it, are inhabited by a race remarkable, beyond any other, for their size, their coarse and massy forms, and the length of their wool. The type of these breeds has been termed the Old Lincoln, which requires, however, to be distinguished from the race of mixed lineage which now inhabits the same country.

The Old Lincoln Sheep, of which the remnants only now exist, are destitute of horns, are of coarse form, have large limbs and hoofs, hollow flanks, and flat sides. Their long unctuous wool almost hangs to the ground, and they have a large tuft on the forehead. Their fleece weighs from 10 to 12 lb., and in the rams and fattened wethers, often greatly exceeds this weight. They are slow feeders, and consume much food, but are valued by the butchers for their tendency to produce internal fat. About seventy years ago, when the New Leicester, or Dishley breed of BAKEWELL, became distinguished, the Lincolnshire breeders resorted to this stock as a means of communicating to their own the property of early fattening, for which the new breed was eminent. This system of crossing was carried on until the close of the last century, and has been continued up to the present time, so that the old breed is scarcely any where to be found of unmixed blood. The figure in the plate, however, has been taken from a flock which has been maintained perfectly pure from a period previous to that in which the Dishley blood was introduced. The worthy owner, amidst all the changes of the times, has continued to maintain the stock which his forefathers had cultivated. By the continued breeding from the same blood, this particular flock has doubtless suffered deterioration; but it retains all the essential characters of the ancient race, and presents, perhaps, the only living example of the most remarkable breed of sheep which the British Islands have produced.

The crossing of the Old Lincoln with the Dishley blood, was not at first effected without great opposition, and a contest arose between the supporters of the ancient breed and the new, which lasted for more than a quarter of a century. The advocates of

THE OLD LINCOLN BREED.

the older breed contended for its greater hardiness, its better adaptation to the rich pastures of the country, the enormous weight to which individuals could be raised, and, above all, their unrivalled fleece. On the other hand, the earlier maturity, and the greater aptitude to fatten, of the new breed, were considerations urged by those who favoured the system of crossing which had been resorted to; and it was contended, that, although the weight of individual fleeces was diminished, the value of wool produced on the acre was increased, from the greater number of animals that could be maintained on the same space.*

The claims of the modern breed in the end prevailed, and the remarkable old race of the fens was by degrees displaced, or mixed largely in blood with, the new variety. The breeders of Lincolnshire doubtless consulted their immediate interests in availing themselves of the improved stock of BAKEWELL, to give at once those qualities to their own in which it was deficient; but at the same time, great regret may now be entertained, that the native breed had not rather been improved by an application of the principle of selection, than destroyed in its distinctive characters by indiscriminate crossing. The wool of the true Old Lincoln breed was altogether peculiar, and such as no country in Europe could produce. That of the New Leicester breed is shorter and finer, but it wants the toughness, softness, and length of fibre which distinguish the other, and which, could it now be obtained, could be used with great advantage in various worsted manufactures. It cannot be doubted, that the same principles of breeding which enabled Mr BAKEWELL to form a new breed, could have been applied by the Lincolnshire breeders to remove the defects of the native race, and call forth its useful properties.

But although the Old Lincoln breed is now almost extinct in the pure state, the breed of mixed lineage which has succeeded to it in the countries of the fens often retains much of its peculiarities. In this rich district are yet to be found the largest sheep of the Island, and it is believed of Europe, with fleeces superior in weight and value to any other. They do not fatten so quickly as the New Leicesters, but they arrive at great weight, and pay the graziers well, on the fertile pastures which are proper to them. The wethers are frequently killed at the enormous weight of 50 or 60 lb. the quarter. Great numbers of these vast sheep may be seen pasturing on the rich flats on the Thames, for the supply of the London market. The mutton may not be sufficiently delicate for the palates of the opulent, but for the supplies of the large population of labourers in our great cities, who are contented with wholesome, nourishing, and cheap food, the mutton of the countries of the fens is as much valued as any other in the kingdom It is of national as well as private concern, therefore, that the modern Lincoln breed should be preserved; and he would merit well of the country who should devote attention to its improvement.

---

* A correspondence on this subject, in the year 1788, has been preserved, between Mr CHAPLIN, a distinguished breeder of the Old Lincolns, and Mr BAKEWELL of Dishley, which is curious, as showing the angry feelings of the time, and bringing before us, and in his own words, one so distinguished for what he has done, and so little known by any thing he has written,—Mr BAKEWELL. It had been proposed, it seems, that a show of rams should take place at Partney, for the purpose of comparing together the old and new breeds. Mr BAKEWELL had declined allowing his rams to be seen until they were sorted, as it is termed, but appears to have thought that there would be no great harm in taking a peep at his rival's, even in their state of disorder. Mr CHAPLIN resenting the proceeding, thus addresses his wily opponent:—"The extraordinary art made use of in the exhibition of your stock at Dishley, points out, in the strongest manner, the impropriety of showing it in a disorderly state; and after refusal on the 21st instant to let you see my sheep before they were collected and sorted at home, I did not expect to hear of your meanly sneaking into my pastures, at Wrangle, on the 24th, with two other people, driving my sheep into the fold, and examining them. Such unwarrantable conduct can only be accounted for by your great anxiety about the show of rams at Partney, near Spilsby, on the 18th of September, which was proposed for the purpose of making the comparison between those bred from your sheep and the original breed of this county. The small sheep that have no cross of the Durham kind, which you have had the address to impose upon the world, without size, without length, and without wool, I have always held to be unprofitable animals; but that I may not appear to be too tenacious of my own opinion, I hope you will produce them at Partney, on the 18th September next, to meet the Lincolnshire sheep, where there will be many better judges than ourselves to decide on their merits."

The reply is characteristic. "On my return home on Tuesday last, I saw your letter addressed to me of the 26th of August, in the Leicester paper of the 6th instant, in which you are pleased to notice the extraordinary art made use of in the exhibition of the stock at Dishley; which you have seen at several different times. Surely you cannot say you have observed any unfair practices, or that you was ever denied seeing what was not engaged for the season, on account of their not being sorted, or being in a disorderly state. At Horncastle, on Thursday the 21st of August, I asked you if I might see your rams near Saltfleet. You did not say I should not, but that they were not sorted, and that when they were you would be glad to see me at Tathwell. I did not go to Saltfleet, but into the marshes, near Skegness; and from thence, on the Saturday afternoon following, to Wrangle; the next day, Sunday the 24th, to Freeston, where I met with two graziers, with whom I had not any acquaintance till that day. They proposed on Monday to go to Skegness, and asked me if I thought they could see your rams. I told them I was informed on my way to and at Wrangle, that they might. We set forward together, and called at the inn at Wrangle, which I came from the day before, and there passed what you are pleased to term, my 'meanly sneaking into your pastures on the 24th.' We asked a young man if you had any rams there, he informed us you had. 'Where are they?' 'In the close next the house.' 'May we see them?' 'Yes.' 'Who would show them?' 'I will.' From which we supposed he had frequently shown them to others. We then alighted and went into the close; he opened the pen-gate, and we assisted him in driving them in, about fourteen in number. The age or breed of any of them I do not know. From thence we went to the person who has the care of your rams, about a mile and a half nearer Skegness, and asked if we could see them; he refused us, saying he had received orders by a letter from you not to show them to any one. He was then asked if they had not been shown before. He answered they had. 'When did he receive the order not to show them?' 'On Saturday night last.' Had we known this before, we should not have been guilty of what you term, 'such unwarrantable conduct.' I have long made it a rule not to find fault with another person's stock. Why should you be so severe upon mine? And I now take the liberty of requesting you to explain what you mean 'by sheep without size, without length, and without wool,' which you say I have had the address to impose upon the world; and of informing you that I am fully persuaded there are ten rams without a cross of the Durham, or any other kind, let for a thousand guineas more this season than the same number of the 'true Old Lincolnshire breed, of the long staple,' some of these at the highest prices, into the counties of Lincoln and Nottingham; and to breeders, many of whom have used the Dishley sort of sheep for upwards of twenty years, and who have agreed for some, and offer higher prices for others, for future seasons, than they have yet given, and may surely be supposed capable of knowing the value of what 'you have always held to be unprofitable animals.' Did they not find their interest in so doing, would they persevere? The address must be extraordinary, indeed, that could impose upon them against their interest and so long experience."

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fearnall, 243 Strand.

THE ROMNEY MARSH BREED.

Ewe, in her second fleece _ bred by Mr. Bishop of Losenham House, Kent.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London. Published December 1841, by Longman, Brown, Green & Longmans, Paternoster Row.

HISTORY.

The native horses of France vary in strength and size with the fertility of the districts in which they have been naturalized. In the countries of abundant herbage they tend to the massy form characteristic of the great horses of Northern Europe. In the southern districts, and generally in those in which the production of herbage is scanty, they assume a lighter form. But besides the characters acquired from the nature of the districts in which the horses are naturalized, there are other characters imprinted by mixture of foreign blood. French writers divide the horses of France into those of the Common and those of the Fine race; the latter having had their characters communicated to them by means of foreign blood. The largest and most powerful horses of France are produced in Normandy and Picardy. The best for the saddle are believed to be derived from Limousin. In the year 732, an army, said to consist of 200,000 Saracens, penetrated even to the walls of Poictiers, where they were totally routed by the heroic CHARLES MARTEL. It is perhaps to the horses then left in the country, that those of Limousin and the neighbouring districts owe that lightness of form which distinguishes them. Towards the mouth of the Rhone is likewise a race of agile horses, having the characters of Barbs, from which they are probably descended. But the native horses of France may be described as destitute of that elegance and lightness of action which characterize the horses of southern lineage. Vast pains, however, have been taken by successive Governments of France to improve the breeds of native horses. This was a favourite object of Napoleon, who introduced considerable numbers of Arabians by the way of Germany. But the enormous destruction of horses by war in the Revolutionary and Imperial armies, and the necessity of resorting to every race of the tributary countries around for cavalry, have greatly retarded the improvement of the races of France. Since the peace, the high-bred horses of England have been much sought for, as possessing the qualities in which the French horses are supposed to be deficient, namely, bone and action.

Germany is a country which, in every known age, has produced numerous herds of horses. The native horses of Germany vary with the fertility of the countries which produce them; but generally, Germany is a country productive of the grasses and corn, and the horses are large and fitted for the exercise of physical strength, but deficient in agility and fleetness. They are well suited for heavy cavalry, for which the Germans have always been noted in modern wars; and, during the middle ages, the larger horses were especially cultivated for the knights and heavy-armed horsemen of the time. Lighter horses have also been introduced from the Ukraine, and other countries to the eastward. The largest horses in Germany are found in Holstein, Mecklenburg, and other countries rich in the grasses, on the shores of the Baltic, and the valleys of the great rivers. The same race of heavy horses extends to the Danish dominions of the Continent, which have long supplied the other parts of Europe with coach-horses. In Holland and Flanders, the same kinds of horses exist, but of yet more bulky and clumsy form: showing that when the climate is moist, when the grasses are abundant, and when artificial food is largely supplied, the Horse assumes that grossness of form which increases his powers of mere strength, but diminishes his speed and capability of active exertion.

Great Britain has been a country abounding in horses for an unknown period. The first accounts we receive of the horses of these Islands are from the Romans. When JULIUS CÆSAR, fifty-four years before the Christian era, landed on the shores of Kent, he found the Celtic aborigines in possession of numerous horses, which they employed as cavalry, or attached to chariots after the manner of the nations of the East. Short scythes, such as were used by the Persians and other Orientals, were fixed to the axle-trees of the chariots. TACITUS and other writers confirm the testimony of CÆSAR; and, what is worthy of note, chariots were found in parts of the island which, of all others, seemed the least suited for such an engine. In the great battle fought by the Caledonians for the liberties of their country at the passes of the Grampians, chariots were used in great numbers, and with desperate but unavailing courage on the part of the combatants. The Gauls, too, as we learn from DIODORUS SICULUS, formerly used chariots; and it cannot but be regarded as remarkable, that the Celtic tribes of Europe should have employed the same usage in this respect as the earliest nations of the East,—the Indians, the Egyptians, the Persians, the Assyrians, and the Greeks during the heroic ages.

With respect to the character of the ancient horses of these Islands, we are left to form a judgment from the nature of the country, and from the races still preserved in which there is no admixture, or a very slight one, of foreign blood. We find the horses of this kind adapting themselves entirely to the physical conditions of the districts in which they are naturalized. In the countries of mountains and heaths, where natural and artificial food is scanty, they are small, or of the pony size: in the lower plains, they are of gross aspect and massy form; so that no country of the same extent presents greater diversity in the characters of its native horses than the British Islands. All, however, when foreign blood has not been introduced, are of the coarse cart-horse form, which we are now in use to distinguish as indicating a want of breeding or blood. They have physical strength, but are deficient in that power of muscular exertion which distinguishes the horses of more genial climes.

But a mixture of races may be supposed to have taken place at an early period. During the long space of 400 years in which South Britain remained a Roman province, it may be believed that the horses of the Roman cavalry exercised some influence on the native breeds. But the Romans abandoned all their conquests in Britain in the early part of the fifth century, when

tiplied in Paraguay and other parts of the interior. These emancipated horses are at times in little herds, a stallion attaching himself to a certain number of mares; but these smaller herds likewise congregate into herds so vast in numbers as to strike the beholder with amazement. Many thousands may often be seen together, acting upon a principle of apparent subordination and union.

Certain of the troop assume the guidance of the rest, place themselves in the van when the herd migrates to new ground, and, when danger is threatened, give the signal to advance or fly. They gallop boldly up to the traveller and objects that are new to them, unlike to the wilder race of Tartary, who station sentinels around the troop, and fly from the sight of danger and the footsteps of man. When they see the domesticated horses, they gallop up to them, caress them with affectionate neighings, and use every means to induce them to escape with them to the wilderness. The latter are not slow to accept the invitation, and, when once restored to liberty, never willingly submit to bondage again. When the wild troops draw near, all the vigilance of the travellers is required to prevent the desertion of their horses, who struggle to disencumber themselves of their trappings and get free. The Wild Horses advance in columns, never in line, sometimes retreating and returning several times, before they can be driven away, and sometimes charging the equipage, and throwing every thing into confusion, in order to effect the rescue. This generous sympathy for their subjugated fellows does not exist in the wild races of Tartary, and, in the case of the Spanish horses, may be safely pronounced to be the result of some feeling connected with their former state of domestication. An amusing traveller, speaking of some captured horses driven cruelly along at speed, goaded and wearied, through the more settled parts of the country, thus describes the effect upon their fellows. "As they are thus galloping along, urged by the spur, it is interesting to see the group of wild horses one passes. The mares, which are never ridden in South America, seem not to understand what makes the poor horse hang his head so low and look so weary. The little innocent colts come running to meet him, and then start away frightened; while the old horses, whose white marks on the flanks and backs betray their acquaintance with the spur and saddle, walk slowly away for some distance, then breaking into a trot as they seek for safety, snort and look behind them, first with one eye and then with the other, turning their nose from right to left, and carrying their long tail high in the air."*

Thèse Wild Horses are easily restored to domestication. Either some of the docility of temper remains which the race had acquired in the domestic state, or the genial clime and abundant herbage render them of gentler temperament than the pristine horses of the Asiatic deserts. The means, however, taken to subdue them are of unequalled barbarity, and altogether different from the careful culture with which, in other countries, the youthful colt is reconciled to obedience, and gradually trained to administer to the wants and pleasures of his protector.

When it is intended to capture a Wild Horse or Baguale, as it is called, the Guachos, or inhabitants of the plain, set out in search of the herd on horses trained to the chase. Either by means of the bolas and lasso, or of the lasso alone, the animal is entangled, thrown to the ground, and either at once mounted and furiously ridden, or tied to a post for several days without food or water, castrated and mounted. The bolas referred to consists of three stones rolled in leather, and tied to a common centre with strong leather cords, more than a yard in length. One being taken hold of, the others are swung around the head, and, when the necessary impetus is acquired, thrown with matchless dexterity round the limbs of the animal to be entangled. The lasso has been often described. It consists of a rope, about the thickness of the finger, made of twisted thongs of untanned hide, fifteen or twenty yards in length. It has a ring at one end forming a running noose. The other end is attached to a strong belt of hide, bound tightly round the horse. The coil is held by the left hand of the horseman; the noose end trails on the ground, except when in use, and then it is swung round the head, when it expands in a circular form, and is discharged from the hand with unerring aim, falling upon the part at which it is aimed, the neck, or one or more of the legs, or round the body, as may be wished, the horseman himself at speed all the while. The entangled animal is hurled to the ground with tremendous violence, and, before he can recover himself, is seized, and sometimes a saddle is strapped upon his back, and a bit forced into his mouth, before he is suffered to rise from the ground. Such is the effect of the formidable missile, which, in all these countries, is used to capture the horse and other animals, and which incessant practice from childhood teaches the Guacho to use with matchless dexterity. The very children, we are told, begin the practice of the lasso almost as soon as they can run about, entangling all animals that are so unfortunate as to come within their reach—dogs, pigs, poultry, and the everywhere-persecuted cat; so that, by the time they are able to sit on horseback, they are dexterous in its use. Not only the wild but tame horses are seized by this formidable engine, and the latter, who have experienced its effects, regard it with terror. The Guacho, it has been said, secures by it the wild horse which he wishes to subdue. Nay, sometimes when pursuing a journey, he supplies himself in this manner with fresh horses, and pursues his course on an animal which had never before bent its neck to servitude. Approaching the wild animal, the lasso is

* Head's Journey across the Pampas.

THE ROMNEY MARSH BREED.

PLATE XVII.

EWE in her second fleece; Bred by SAMUEL BISHOP, Esq. of Losenham House, Kent.

The Sheep of these Islands, it has been seen, may be divided into two general classes: 1. The smaller Sheep, inhabiting the mountains, moors, downs, and less fertile tracts, and producing, for the most part, short wool, fitted for preparation by the card, and the manufacture of cloths; and, 2. The larger Sheep, naturalized in the plains, marshes, and richer country, producing wool which is long in the filaments, and adapted to the manufacture of the stuffs termed worsted. With the progress of cultivation, and the increased means of supplying artificial food, the Long-woolled breeds have been continually gaining in numbers upon the Short-woolled. They may be divided into those which inhabit the fens and marshes, and those which are found in the inland and drier country. Of the former class, greatly the most numerous and remarkable was the Old Lincolnshire Breed already described, of which the remnants only now exist in the unmixed state. Another variety of the same class inhabited a limited tract of low ground termed Romney Marsh, situated on the southern coast of Kent, at the western entrance to the Straits of Dover.

Romney Marsh is a plain of alluvial land nearly on the level of the sea, protected from the tides by dykes in the manner of the marshy flats of Holland. It extends from Hythe to the river Rother, about fourteen miles, and, at its broadest part, from Dengeness to Appledore, ten miles. It is divided into four districts, namely, Romney Marsh Proper, which is the largest and most westerly division; Walland Marsh, the next adjoining to the westward; Denge Marsh, with South-brooks on the south, and Guildford Marsh, the greater part of which is in the county of Sussex, on the west. This tract was known to the Anglo-Saxons by the name of Merseware or Mersewarum, and the inhabitants were designated by a term signifying marsh-men or fen-men. It was early fenced from the overflowings of the sea, and the conservation of the dykes and drainage was provided for by local laws and observances, which, so long ago as the reign of HENRY III., were denominated ancient and approved customs. The land consists in part of infertile sand, gravel, or peat, but essentially of a deep rich alluvial clay, bearing the grasses and other herbage plants abundantly, and never having been subjected to the action of the plough. "It ys," says Leland, "a marvelous rank ground for fedying catel, by the reason that the grasse groweth plentifully upon the wose, sum tyme cast up there by the se." The land is subdivided by rails, and deep ditches filled with stagnant water. There are scarcely any hedges or trees to afford shelter. The roads are broad miry paths, rudely fenced off from the marsh, and scarcely to be passed after heavy falls of rain. The inhabitants are few in number, scattered over the flat monotonous surface in mean hamlets, or villages, and mostly employed in tending the numerous sheep by which the ground is depastured. The air is humid from stagnant water, and the wealthier possessors of the farms reside, not in the marshes, but on the more elevated grounds surrounding them; and the animals which are reared or fattened on the marsh, depend on the natural herbage which it produces. The principal produce is Sheep, which are reared in greater numbers than in any similar space in the kingdom.

The ancient native Sheep of this district had coarse heads furnished with a tuft of wool, thick necks, long stout limbs, broad feet, narrow chests, flat sides, and great bellies. They were of the larger class of Sheep, but yet fell short in weight of the heavy-woolled Sheep of the eastern counties. The fleece weighed 7 lb. or 8 lb., had the usual qualities of long wool, was moderately soft, but unequal, and coarse on the posterior parts. These Sheep were slow in fattening, the wethers being rarely fit for use until they had completed their third year; but yet they were favourites with the butchers from their yielding a large proportion of internal fat and offal. They bore well the exposed maritime situation in which they were placed, and acquired the habit of avoiding the dangerous ditches by which the country is intersected.

The modern breed of Romney Marsh, which has extended into other parts of Kent, still exhibits much of the characters of the ancient family, the individuals being for the most part long-legged, flat-sided, and coarse in the extremities. But a surprising change has been undergone within the present century, and there now exist entire flocks which cannot be recognised as the descendants of the older race. This change has arisen in part from intermixture of the New Leicester blood, and in part from the increased attention of breeders to the form and qualities of the animals.

The Leicester Breed found its way into these marshes more slowly than into most other parts of the kingdom, and violent prejudices, not yet subdued, for a time resisted its reception. But about the beginning of the present century, a general desire began to manifest itself amongst the more enlightened breeders to avail themselves of the means of improvement which a breed

THE ROMNEY MARSH BREED.

so highly cultivated as the New Leicester presented to them; and great numbers of rams from the midland counties were accordingly introduced by individual breeders. The effects were soon apparent, even in the flocks of those who were the most opposed to the foreign breed; and it may be doubted if there now exists a single long-woolled Sheep in the county of Kent, in which the influence of the New Leicester blood does not appear. The first effect of the crossing was to reduce the bulk of the native Sheep, but to give them a greater symmetry of parts and tendency to fatten; and, independently of the effects, direct and indirect, of the mixture, the placing before the eyes of breeders of superior models, produced a beneficial result throughout the whole district, and more attention was from this period bestowed on improving the native stock by selection. After a time, indeed, the feeling in favour of the older race began to revive, and, for a considerable period past, the Romney Marsh breeders have, with few exceptions, continued to breed from the indigenous stock. Nevertheless, the effects of the change produced by the former crossing remained, and the modern Sheep of the marsh, although still retaining a greater degree of coarseness and lankness of body than can be approved of, form a very different race of animals from the Kentish Sheep of the beginning of the present century.

The arguments used against the introduction of the more cultivated breed were similar to those employed by the breeders of the eastern marshes. It was argued that the decrease of size and deterioration of the fleece were not compensated by the earlier maturity, and greater tendency to fatten, of the imported breed; that the latter were less saleable to the butchers, and that the ewes were less prolific, and inferior as nurses. It was contended besides, that the new breed and its descendants were less suited than the former to the open marshes on which they were to be reared without shelter or artificial food, and that they were apt to be driven into the ditches by the strong gales which at certain seasons swept over the marsh. A satisfactory answer can be given to the greater part of these objections. The decrease of weight was, to a certain extent, more apparent than real, arising from a diminution in the size of bone and the coarser parts, and there was always a more than corresponding gain by the breeders being enabled to bring their animals to market at an earlier period. The depreciation in the weight and quality of the wool was little in the case of this breed; the wool of the Romney Marsh Sheep never having been in the first class, with respect either to quality or productiveness. That the new breed was less acceptable to the butchers is true; but this was because the fat was more deposited on the external parts, and because the offal was less. The interest of the butcher, it is to be observed, corresponds only in certain points with that of the breeder. The butcher prefers the animals that yield him most profit from the parts sold in retail; but he has no concern with the quantity of food consumed by them, with the period required for bringing them to maturity, nor with the details of management which yield a profit to the owner. The butchers, as a class, have rarely been the advocates of those changes which have added so great a value to the live stock of the country: and in the preference which they long gave to the coarse sheep of Romney Marsh, their opinions exercised a peculiarly injurious influence on the breeding of sheep in this part of England. The opinion frequently expressed, that the new breed is less productive of lambs than the old, does not seem to be well founded. Generally, indeed, all the coarser varieties of sheep are better nurses, and more prolific, than the more highly improved, under similar treatment. But it does not appear that the Romney Marsh Sheep were ever peculiarly noted for producing numerous lambs, or for being good nurses. No sheep in this country had so much difficulty in parturition, or were so apt to desert their offspring, as the Romney Marsh ewes. With respect to the averment, that the old breed was better suited than the new to withstand the stormy climate of the marsh, and preserve itself from the open ditches with which the country is intersected, it is to be observed, that some truth, mixed with more of error, exists in the statement. The New Leicester Breed is reared with facility in situations greatly more cold and exposed than the Romney Marsh, which possesses as good a climate with respect to temperature as exists in England. That the Romney Marsh Breed is better calculated to preserve itself from the accidents resulting from the open ditches of the country than a breed naturalized in a different situation, may be admitted; but the danger itself ought to be provided against by suitable enclosing, and not used as an argument against the cultivation of a superior breed. Further, the fact, if it shall be admitted, that the one breed is better fitted than the other to subsist without artificial food and shelter, is no argument against the reception of the superior breed, but a strong one in favour of a better system of management. There cannot be a doubt that the sheep of the Romney Marsh have been signally benefited by the blood of the New Leicester race. The Romney Marsh breeders may now please themselves by believing that their own breed is superior to the imported one, and no harm will result from the opinion, provided they discard their other prejudices, and breed from the best of their own stock and upon a suitable model. The long and constant error of the Kentish breeders was their looking to size more than to the other qualities indicative of a good stock of sheep. Size, indeed, is not to be disregarded in any breed reared in a country of rich pastures; but that just conformation of parts which indicates the disposition to arrive at early maturity and fatten readily, is yet more to be regarded.

THE OLDER LONG-WOOLLED BREEDS OF THE INLAND DISTRICTS.

The Sheep of the marshes and fens are represented by the Lincolnshire and Romney Marsh Breeds already described. Minor varieties of the same breeds existed in detached alluvial tracts along the coasts; but they were confined to narrow localities, and have now all merged in the races of the adjoining districts. The other class of breeds consists of those which have been naturalized in the valleys, plains, and richer tracts of the inland parts. The great district of these breeds is the rich tract of the new red sandstone, commencing with the country of the Tees, extends southward by the Vales of York and Trent to the lower valley of the Severn, and thence again northward; although, it is to be observed, that it is chiefly in the eastern and midland counties that these breeds are found, and that, as we approach to the western limits of the new red sandstone in the north of Staffordshire, Cheshire, and Lancashire, the long-woolled breeds are in smaller numbers, and mixed with, or allied to, the ancient breeds of the forests, wastes, and chases.

The most remarkable of the inland breeds was the Old Teeswater, so named from the valley of the beautiful river which separates the counties of York and Durham. This valley is exceedingly fertile, though of limited extent; but the breed to which it gave a name extended, with some change of characters, northward into Durham, and southward through the greater part of Yorkshire, until it merged in the heavy-woolled sheep of the marshes on the one hand, and those of Leicestershire and the other midland counties on the other. The true Teeswater Sheep, as reared in their native valley, were of the larger class, very tall, bearing a long but not a very thick fleece, inferior only in toughness and length of filaments to that of the ancient Lincolns. The wool was, however, more hard, less uniform in the staple, and very coarse towards the extremities. These sheep were of an exceedingly uncouth form: they had coarse heads, large round haunches, and long stout limbs. They were slow in fattening, and required for their support good pastures, with a supply of hay and corn. They were the most prolific of all our races of sheep, bearing usually two, and not unfrequently three, lambs at a birth; and they were surpassed by no other sheep in the faculty of yielding milk. This coarse and heavy breed has now entirely disappeared in its original form. The New Leicester Breed progressively extended northward through the Vale of York, and at a still earlier period had been established in Northumberland by breeders the contemporaries of BAKEWELL. Under these circumstances, the older breed of the Tees soon gave place to the new breed of the Midland Counties, either by substitution of the one for the other, or by the effects of crossing. At the commencement of the present century, a few individual sheep only of the older breed were to be found in the hands of some old farmers unwilling to relinquish preconceived opinions and habits. At the present time not one living example, perhaps, remains of the true Old Teeswater. The only traces of it that present themselves are in the largeness of size of the sheep of particular breeders, who have continued to prefer a stock of larger sheep to the more modern variety of higher breeding.

Proceeding southward, the Teeswater and its varieties gradually merged in the former breeds of Leicestershire and the adjoining counties. These latter varieties were smaller than the true Teeswater, but of figures equally ungainly. They had coarse heads, thick hides, and long lank bodies; and corresponding with the defects of their external form, was their slowness in fattening and arriving at the required maturity. A Ram of the Warwickshire variety is described by Mr MARSHALL as having "a frame large and remarkably loose, his bone heavy, his legs long and thick, terminating in great splaw feet, his chine as well as his rump sharp as a hatchet, his skin rattling on his ribs." The wool of these sheep varied with the locality, but generally it was inferior in weight, shorter in the staple, and more slender in the filaments, than that of the genuine Teeswater. All these varieties of sheep have disappeared, so that not a living example of them is to be found; and their place has been long taken by the beautiful breed to which reference has been so frequently made, and of which more especial notice shall be taken in the sequel.

In the western counties, from the southern division of Staffordshire northward to the Solway Firth, the long-woolled varieties were rare, and found only in a few places. They were all of the coarsest kinds of sheep, and inferior in weight of body to those of the eastern and midland counties. Some of them lingered until a recent period in the lower parts of Westmoreland and Cumberland, and some of them extended across the Solway into the west of Scotland. They have now all disappeared, or left only indistinct traces of their former existence in the flocks of a few careless Sheep-masters. It is not known whether Scotland originally possessed a native race of Long-woolled Sheep, but sheep of this kind were early in the last century introduced into the south-eastern border counties, and, about the time of the American war, were largely mixed in blood with the improved New Leicester.

Another district of Long-woolled Sheep is found in England just beyond the tract of the lias and oolite limestone, in the counties of Devon and Somerset. One variety of them inhabited the southern part of Devonshire from the Vale of Honiton west-

THE OLDER LONG-WOOLLED BREEDS OF THE INLAND DISTRICTS.

ward, and another was found more to the north stretching to the river Parret in Somersetshire. The first of these varieties, termed Southham Notts, had brown faces and legs, crooked limbs, and flat sides. They carried a fleece of long wool, moderately soft, weighing from 9 lb. to 10 lb., and at 30 months old the wethers weighed from 22 lb. to 25 lb. the quarter. The other variety was termed Bampton Notts, from the village of that name on the confines of the counties of Devon and Somerset. They had white faces, bore a very weighty fleece of long wool, and weighed at two years old from 30 lb. to 35 lb. the quarter. These breeds have been largely crossed with the New Leicester, and may be said to be now extinct in their pure state. The first mixture of blood produced at once animals greatly superior to the older race. The defect of these sheep was their clumsy forms and thick hides, and consequent indisposition to fatten. These faults have been entirely corrected by the crossing that has taken place, although this was more tardily carried into effect in Devonshire than in any other part of England; and on the basis of the older breeds has been formed a very fine race of sheep, diminished in bulk of body from the original Bamptons, but still amongst the largest sheep in the kingdom. Thus a wether of mixed blood, killed in 1835, had arrived at the prodigious weight of 70 lb. the quarter; and one lately living in the neighbourhood of Exeter weighed 430 lb. live weight. The breeders of Devonshire take a just pride in their newly-formed breed, but do not seem disposed to reduce the size to the standard approved of by the Leicester breeders.

Crossing the Irish Channel, we find a country abounding in Long-woolled Sheep. Ireland, from the fertility of the soil, the humidity of the climate, and the mildness of the winters, is well suited for the rearing of Sheep of the larger kind; and Sheep appear, in every known period, to have existed in numbers throughout the country. They consisted partly of short-woolled breeds, to which reference has been already made, and partly of a long-woolled race, which extended with pretty uniform characters over the greater part of the level country. This latter race was of large size, and of a form peculiarly coarse and unthrifty. They are described by Mr Culley as they were seen by him at the fair of Ballinasloe, in the latter part of last century, thus:— "I am sorry to say I never saw such ill-formed ugly sheep as these: the worst breeds we have in Great Britain are much superior. One would almost imagine that the sheep-breeders in Ireland have taken as much pains to breed plain awkward sheep, as many of the people in England have to breed handsome ones. I know nothing to recommend them except their size, which might please some old-fashioned breeders, who can get no kind of stock large enough. But I will endeavour to describe them, and leave my readers to judge for themselves. These sheep are supported by long, thick, crooked and grey legs; their heads long and ugly, with large flagging ears, grey faces, and eyes sunk, necks long, and set on below the shoulders; breasts narrow and short, hollow before and behind the shoulders; flat-sided, with high narrow herring backs; hind quarters drooping, and tail set low. In short, they are almost in every respect contrary to what I apprehend a well-formed sheep should be."* Of the fidelity of this description no doubt can be entertained, although the change that has since taken place is so great as to leave little likeness of the former picture. There yet remain, indeed, some of the distinctive characters of the older family,—the large heads, the flat sides, the narrow breasts; but all that excessive ugliness of form which placed the Irish below the worst breeds of England, may be said to have disappeared. This has been the result of crossing with the New Leicester Breed, which began about the time Mr Culley wrote, and has been continued since with such success that it is now difficult to find an individual of the unmixed race in the whole country. Many of the wealthier breeders acquired at once flocks of the pure New Leicester Breed, but the main effect was produced by crossing, which everywhere took place with a rapidity which may well be deemed remarkable in a country where so defective a state of property exists, and where so many obstacles counteract the natural course of improvement.

But the present Long-woolled Sheep of Ireland still want much of the perfection at which they are capable of arriving. They are yet, for the most part, too coarse in their general form, narrow in the chest, and flat-sided. The wool is only of medium quality and weight: there is a sort of harshness about it, which shows that the long wool of Ireland was never of good quality. The breed is more valued by the butcher in its present state than when more highly improved; but there is manifestly too great a proportion of waste for the profit of the breeder, and it does not appear that the mutton is superior to that of the New Leicesters. It is the fear of many breeders in Ireland, that the system of crossing has been carried too far, and that the Sheep of the country are becoming too small. The same fear was entertained by the owners of the Teeswater, the Romney Marsh, and other long-woolled Sheep of England, when the Leicester blood was first introduced. But time allayed these misapprehensions, at least to the extent to which they were at first excited; and although in many districts of England the breeders seem now disposed to resist the further change of their stock by crossing, this was not until after a larger infusion of the blood of the new breed than has yet taken place in the great mass of the long-woolled Sheep of Ireland, which certainly cannot be said to have yet arrived at a degree of refinement injurious to their useful qualities. They have still, for the most part, too great length of limbs with relation to the depth of carcass, and their apparent bulk of body may yet be materially lessened without diminution of the weight.

---

* Culley on Live Stock.

Drawn by W.r Nicholson, R.S.A. from a Painting by M.r Shiels, R.S.A.

Drawn on Stone & Printed by Lowland 15, St. John's Square

THE COTSWOLD BREED

Ewe, 8 Years old — bred by M.r Joseph Hewer, Easlington, Gloucestershire.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London, Published December, 1841, by Longman, Brown Green & Longmans Paternoster Row

THE COTSWOLD BREED.

PLATE XVIII.

EWE, Eight Years Old; Bred by JOSEPH HEWER, Esq., Easlington, Gloucestershire.

The Cotswold Breed of Sheep derives its name from a tract of low calcareous hills in the eastern division of the county of Gloucester, forming a part of the great Oolite formation of England, which, commencing with the moorlands of Yorkshire, stretches diagonally across the island, and loses itself in the British Channel, near the Isle of Portland. The Gloucester portion of this tract is of moderate elevation, comparatively infertile, yet capable of cultivation, and yielding in the natural state a short sweet herbage. It was formerly a range of bleak wastes, employed in the pasturage of Sheep, and much of it was in the state of common; but with the progress of the last century, the commons were appropriated, and cultivation was extended. It derives its name from Cote, a sheep-fold, and Would, a naked hill. It was early noted for the numbers of sheep which it maintained, and the fineness and abundance of their wool. "In these woulds," says the translator of CAMDEN, "they feed in great numbers flockes of sheep, long-necked and square of bulk and bone, by reason (as is commonly thought) of the weally and hilly situation of their pasturage, whose wool, being most fine and soft, is held in passing great account amongst all nations." Other writers refer to the excellence and abundance of the wool of the Cotswold Wolds. DRAYTON contrasts the rich fleeces of Cotswold with the flocks of Sarum and Leominster, and gives the palm to Cotswold for its more abundant produce.* The faithful and laborious STOWE, in his Chronicles, states, that, in the year 1464, King EDWARD IV. "concluded an amnesty and league with King HENRY of Castill, and JOHN, King of Aragon, at the concluding whereof, hee granted licence for certain Coteswold Sheepe to be transported into the country of Spaine, which have there since mightily increased and multiplied to the Spanish profit, as it is said." The worthy writer is not wholly satisfied that the Spaniards owed all their Sheep to England; for, adds he, "true it is, that long ere this were Sheepe in Spaine, as may appear by a pattent of King HENRY the Second, granting to the weavers of London, that if any cloth were found to be made of Spanish wool, mixed with English wool, the maior of London should see it brent." ADAM SPEED, who wrote in 1629, describes the wool of the Cotswold Sheep as similar to that of the Ryeland. "In Herefordshire, especially about Lempster, and on those famous hills called Coteswold Hills, sheep are fed that produce a singular good wool, which, for fineness, comes very near to that of Spain, for from it a thread may be drawn as fine as silk." The precise character of the Sheep which produced this wool is now unknown. They were probably similar to the large fine-woolled breeds of the adjoining counties of Wilts and Berks, a supposition which agrees with the locality of the districts, and with "the long necks and square of bulk and bone" ascribed to the Cotswold Sheep by CAMDEN, and explains the distinction of DRAYTON between the wealthy locks of Coteswold, and the less abundant ore of Lemster. MARKHAM, indeed, a writer of the time of Queen ELIZABETH, speaks of the Cotswold Sheep as having long wool, but this testimony cannot weigh against the direct authority of SPEED in a later age; and we cannot be sure that the term long, as used by MARKHAM, is any thing else than relative, as applied to the two kinds of wool.

The Sheep, however, which now possess the same country, and have inhabited it beyond the memory of the living generation, are a Long-woolled race, and thus entirely distinct from the Sheep of the ancient forests, wolds, and downs, which produced the former fine wool of England. They are of the larger class of British Sheep, and all their characters denote them to be a breed of the plains and richer country. The period of their introduction is unknown, but it probably took place pretty late in the last century, with the appropriation of the commons, and the extension of tillage in a degree sufficient to supply artificial food to a larger kind of animal. A traditionary belief has always existed in the country, that the modern race is not the original one of the Cotswold Wolds; but no intelligible account can be obtained from any one now living of the time or manner of its introduction. It was probably derived from the upper part of Oxfordshire, or from Warwickshire, the ancient breed of which it seems in some respects to have resembled; and the change may have been chiefly produced by crossing. Mr MARSHALL and some intelligent writers, indeed, have believed that the Cotswold Sheep have always been a Long-woolled breed, and have cited in support

---

* "T' whom Sarum's plaine gives place, though famous for its flocks;
Yet hardly doth she tythe our Cotswolde's wealthy locks:
Though Lemster him exceed in finenesse of her ore,
Yet quite he puts her downe for his aboundant store."
POLY-OLBION.

THE COTSWOLD BREED.

of this opinion the absence of any information to be obtained in the district itself regarding the supposed change of breeds. But we know how quickly the memory of such events is effaced, and that changes as great as that in the Cotswold Sheep have occurred in all parts of the kingdom, without our having the means of obtaining any account of them after the lapse of a short period. It would be opposed to all that we know of the natural history of the Sheep, to suppose that a tract of country so recently cultivated and enclosed as the Cotswold Hills, could have maintained on its natural herbage one of the largest races of sheep in England, and communicated to it the property of growing long wool. Such a race, we must suppose, was indigenous to the plains, and has merely taken the place of an older breed, in a manner similar to that which has been continually occurring during the last fifty years over a great part of the British Islands.

But the Long-woolled Sheep of the Cotswold hills have themselves undergone an important change within a period comparatively recent. They were formerly of greater bulk of body and coarser forms, and are said to have borne a greater weight of wool than they now yield. But about sixty years ago, the New Leicester Breed, on its extension throughout the central counties, was made to cross the Cotswold as well as all the Long-woolled sheep of Gloucestershire. This system of crossing was pursued so extensively, that after a time there did not perhaps exist a single Cotswold flock which was not more or less mixed in blood with the New Leicester Breed. The effect was, as in other cases, to diminish the bulk of body of the existing breed and lessen the produce of wool, but to communicate to the individuals a greater delicacy of form. Between twenty and thirty years ago, however, the Cotswold breeders began to apprehend that their flocks were losing too much in carcass and fleece, and becoming less fitted for the climate of their native hills. From this period a preference began to be given to the native stock, and for many years past crossing has been scarcely practised, and most of the breeders have been desirous to revert more to the former model of their breed.

The modern Cotswold Sheep are of a size somewhat superior to the highest bred New Leicesters, and their wool is more close upon the body. The staple measures from 6 to 8 inches, and the fleece weighs upon a medium from 7 to 8 lb., that of the inferior flocks not exceeding 5 and 6 lb. It is strong, of a good colour, rather coarse, but of a mellow quality. These sheep have not been brought to the same perfection of form as the New Leicester, and, like the sheep of Romney Marsh, they tend to accumulate fat on the rump almost to the degree of producing deformity; but they are hardy, and usually of sound constitutions. The females are prolific and good nurses, and the lambs are early covered with a close fleece. At a former period, when tillage was less extended than now, the Cotswold Sheep were frequently sent in winter to the valleys of the Thames and Severn, and generally sold in the lean state at between two and three years old. But since the old sheep-walks have been broken up, and turnips and artificial grasses cultivated, the greater part of the sheep that are reared in the country are likewise fattened in it. They are kept on turnips, vetches, hay, and the grasses and clovers, and disposed of in the fat state at from a year and a-half to two years old; and within these last seven or eight years the practice has been introduced of bringing them to market at twelve or fourteen months old. At the latter age they weigh from 15 to 24 lb. the quarter; and when from a year and a-half to two years old, their medium weight is calculated to be from 20 to 30 lb. the quarter.

The Cotswold Breed, after having long yielded to the progress of the more highly cultivated New Leicester, has of recent years been attracting the attention of general breeders, and is now contesting the ground with the Leicester in various districts of England and Wales. The qualities that in an especial degree recommend it to notice are, its hardiness and property of thriving under common treatment, and the faculty of the females of yielding numerous lambs and supporting them well. The Breed is still far short of the New Leicester in form, but it has been making continued advances to a more perfect state by the increased attention bestowed on selection and general treatment. The system of letting Rams for hire has been adopted on the large scale by some of the Cotswold breeders; and from the attention which this necessarily directs to the rearing of superior males, it cannot be doubted that the Cotswold Breed will be yet further extended and improved.

Drawn on Stone & Printed by Fairland & Sons, St. Johns Sq.

Drawn by Mr. Stevenson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

THE NEW LEICESTER BREED.

Ram, a two-shear Sheep, bred by Mr. Buckley, Normanton Hill, Leicestershire.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Drawn by Mr. Nicholson R.S.A. from a Painting by Mr. Shiels R.S.A.

Drawn on Stone & Printed by Fairland 45, St. John's Sq.

THE NEW LEICESTER BREED.

Wether, one-shear Sheep, bred by Mr. Stockes, from the Rams of Mr. Buckley.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

London, Published December 1841 by Longman Brown Green & Longmans Paternoster Row.

THE NEW LEICESTER BREED.

PLATE XIX.

RAM, a Two-Shear Sheep; Bred by JOHN BUCKLEY, Esq., Normantonhill; Wool 14 days grown.

PLATE XX.

WETHER, a One-Shear Sheep; Bred by Mr STOCKES, from the Rams of Mr BUCKLEY; Wool 44 days grown.

The Breed of Sheep termed the New Leicester, is so named from the county of Leicester, where it had its origin. It was formed by ROBERT BAKEWELL of Dishley, whence it is likewise termed the Dishley Breed. It was about the year 1755 that Mr BAKEWELL began those experiments on the breeding of animals which led to such important results. His purpose was to produce sheep exempt from the defects of the races then cultivated, and possessed of a greater aptitude to fatten and arrive at early maturity; and the means which he employed were, breeding from the individuals possessed of the properties sought for, and rendering these properties permanent in the offspring. It is known that, by continued selection of the male and female parents in a given number of animals, the characters deemed defects can, under certain limits, be removed, and the acquired properties rendered permanent in the progeny by continued reproduction with one another. The principle that the virtues of parents are communicated to their young was not newly discovered; but it was reserved for BAKEWELL to apply it in the case of the animals used for human food in a new manner, and to produce more remarkable results than had before been arrived at. He perfectly understood the relation which exists between the external form of an animal and its aptitude to become fat in a short time. He saw that this relation did not depend upon size, nor, in the case of the sheep, on the power of the individual to yield a large quantity of wool. He therefore departed from the practice of all former breeders of the Long-woolled Sheep, who had regarded size and abundant growth of wool as primary properties in the parents. Holding bulk of body and the produce of the fleece to be secondary properties, BAKEWELL directed especial attention to the external form which indicates the property of yielding the largest quantity of muscle and fat with the least bone, and what is usually termed offal. He aimed, too, it is said, at producing the fat on the most valuable parts; but this is merely a subsidiary property dependent upon general harmony of conformation. Progressively perfecting his animals by skilful selection, he necessarily continued to breed from his own stock, and did not scruple to connect together animals the nearest allied in blood to one another. This system, continually pursued, not only gave a permanency to the characters imprinted on his sheep, constituting a breed in the proper sense of the term, but tended to produce that delicacy of form which experience shows to be connected with the power of secreting fat, and arriving at early maturity, or what may be termed premature age. The system acted upon for successive generations tended likewise to render the animals more the creatures of an artificial condition, more delicate in temperament as well as in form, less prolific of lambs, and less capable of supplying milk to their offspring. It cannot be supposed that BAKEWELL was unobservant of these effects; but he appears to have regarded them as a consideration secondary to the property of producing in the shortest time the largest quantity of fat with the least consumption of herbage and other food. That this was the main result at which he aimed, all his practice shows; and his success corresponded with the skill and perseverance with which he applied his principles to practice. His stock became gradually known and appreciated in the country around him; but it was not until after the lapse of nearly a quarter of a century that it arrived at that general estimation in which it was afterwards held. He early conceived the idea of letting his rams for the season in place of selling them. The plan was ridiculed and opposed in every way, and it was not until after the labour of many years that he succeeded in establishing it as a regular system. It is said that his rams were first let in 1760 at 17s. 6d. each; but this was certainly before his breed had arrived at its ultimate perfection. His usual price afterwards became a guinea, and in rarer cases two or three; but the price rapidly advanced with the increasing reputation of his stock. In 1784–85, the price had risen to about 100 guineas for his best rams. In 1786, he made about 1000 guineas by the letting of his stock; in 1789, he made 1200 guineas by three rams, and 2000 guineas by seven, and in the same year he made 3000 guineas more by letting the remainder of his rams to the Dishley Society then instituted. These facts deserve to be recorded as manifesting the high estimation in which the breed of BAKEWELL was held as soon as its properties became known.

Controversies have arisen regarding the parent stock from which BAKEWELL produced his breed. He himself chose to adopt

THE NEW LEICESTER BREED.

a studied mystery on the subject. Some have imagined that the basis of his breed was the Old Lincolnshire, some the Teeswater, some the Warwickshire, while others contend that he crossed with the Ryeland, the Southdown, the Charnwood Forest, or some other of the Short-woolled breeds, in order to communicate that fineness of bone and peculiar character of wool distinctive of his breed. But whatever were the first experiments of BAKEWELL, the knowledge of them perished with the individual, and there is nothing in the breed as it was at length perfected which can enable us to explain the progressive steps by which its characters were acquired. In one of his letters to Mr CHAPLIN he admits that he had at one time made use of Old Lincoln rams; but he states, at the same time, that he had not done so for many years, and he ever afterwards expressed the utmost dislike of this coarse and unthrifty breed, which was, indeed, the most removed of any other from the model which his own principles of breeding led him to adopt. Neither was the Old Teeswater one which presented the characters required. This, it has been seen, was a very large and coarse breed, and not one, therefore, which BAKEWELL was likely to select as the basis of a stock, of which he sought rather to diminish than increase the size. Besides, the wool of the Old Teeswater was extremely long in the filaments, and differed greatly in this respect from the shorter and finer fleece acquired by the New Leicesters. All the presumption is, that the basis of BAKEWELL's breed was the Long-woolled Sheep of the midland counties, from which he may be supposed to have made such selection as suited his purposes. On his obtaining his paternal farm he would necessarily succeed to a stock of sheep similar to that which existed on the neighbouring farms, and it would only be in accordance with the practice of ordinary caution, that he should endeavour to improve this stock rather than at once adopt another of a different race. It is commonly believed, that a little before the improvements of BAKEWELL, one breeder, at least, in the county of Leicester, had acquired the distinction of possessing superior sheep, and disposed of rams for the purpose of breeding. Whether BAKEWELL owed anything to the anterior improvements of others, is unknown. From what we know of his character and habits, he himself would have been the last to acknowledge his obligations to another breeder; but he used such precautions for concealing the sources from which he derived the means of improving his animals, as may well favour the suspicion that he was not wholly without obligations to the labours of his cotemporaries or predecessors. With respect to the opinion that he crossed his stock with the Short-woolled Sheep, it rests upon no actual knowledge of the fact. It appears that he made numerous experiments in the early period of his breeding; and it is not impossible that he may have made a partial cross by such animals as seemed to suit his purposes without reference to their origin. A certain darkness of colour in the skin of the face of his sheep may seem to favour the opinion that he had made a cross with some of the dark-faced Down or Forest breeds; but we do not know whether the Old Leicesters did not, like the Southham Notts, and some others of the larger varieties, possess something of this peculiarity. With regard to the delicacy of form and shortness of wool of the New Leicester breed, it is not necessary to account for their existence by resorting to the supposition of a mixture of blood with any of the short-woolled races. Both characters were necessarily communicated by the system of breeding which BAKEWELL pursued. Not only did he regard the growth of wool as a secondary effect, but he appears to have entertained the opinion, that the production of a large quantity of wool was inconsistent with the property of yielding much fat; and this opinion would necessarily conduct him to the choice of animals for breeding which produced a lighter fleece. Besides, the sheep of the midland counties did not always produce wool which was long in the staple. A part of the counties of Leicester and Warwick lies in a calcareous country favourable to the production of the shorter and finer kinds of wool; and the wool of the Old Warwickshire Sheep, in particular, appears to have closely approximated to that of the modern Leicesters. There is no reason, therefore, to assume, from any of the characters presented by the wool of the New Leicester Breed, that the parent stock was any other than the Long-woolled Sheep of the midland counties.

The New Leicester Sheep, though smaller in bulk of body than the long-woolled races which they supplanted, are yet of the larger class of Sheep with respect to weight. Their limbs being shorter, and their bodies more round, compact, and deep, than in the former breeds, they are of greater weight in proportion to their apparent bulk. Their actual size is various, depending on the wishes of breeders to possess larger or smaller animals, and on the fertility, natural or acquired, of the districts in which they are reared. In general, it may be said that the wethers weigh from 25 lb. to 35 lb. the quarter when fattened in their second year. The wool is of medium length, having a staple of from six to eight inches, and weighing about $7\frac{1}{2}$ lb. the fleece in Sheep of fifteen or sixteen months old. It is too short and weak to be admitted into the first class of combing wools, and, in the properties which fit it for the manufacture of worsted, it falls short of the wool of the older breeds. Nevertheless it is more evenly grown, is soft, and of good colour, and possesses several properties of long wool in perfection.

But it is neither in the size or weight of body, nor in the productiveness or quality of the wool, that the real value of the New Leicester Breed consists. Its value and superiority are to be found in its more perfect form, and aptitude to fatten at an early age, in which respects it surpasses all the other varieties of Long-woolled Sheep which have been cultivated in this country, or naturalized in any part of Europe. The New Leicester Sheep can, under the ordinary management of the farm, be readily fattened for human food at the age of fifteen months, that is, when, in the language of farmers, they are shearlings; and in no case

HISTORY.

the beginning of last century, the imported horses were Barbs and Turks, but chiefly Barbs, which had therefore the greatest share in forming the original characters of the English Race-horse. The pure Arabs were chiefly introduced in the early part of the last century. They continue to be imported up to the present day, but in diminished numbers, and with little effect on the existing race, whose characters have been long formed.

When the system of the Turf was perfected, those horses only were able to contend in the race which possessed in the requisite degree the property of speed; and as this property is derived from animals possessed of the same virtue, the horses used for the turf came to be distinguished by their pedigree; and all may be traced by the parents to horses of the East, which had been mingled in blood with the pre-existing race. The pedigrees of horses which claim the privilege of running, or rather which possess the properties of speed in a sufficient degree to enable them to run, have been preserved with jealous care, so that there has been formed a privileged class which may be termed horses of noble blood. The institution is similar to that which has been formed amongst the Circassians and Arabs. The horses of this caste or family being made to breed with one another, its characters became permanent, and a distinct breed, in the proper sense of the word, was produced. The triumph of art was complete, and the breed produced, for a combination of strength with the power of rapid motion, became unequalled in the world, excelling in fleetness the horses of the Arabian deserts, and surpassing in strength and beauty the chariot steeds of the Olympic games. It was not merely by mixing the blood of the African and Asiatic horses with those of England that the full end was arrived at. It was by continued reproduction between the descendants of the mixed stock, selecting for breeding those which possessed the characters required. Foreign nations are desirous to obtain the Race-Horse of England for improving the native breeds, and to this end these noble horses are eminently suited; but this of itself will not form a race of horses possessed of permanent characters. To effect this, the long-continued care of breeding is required, until a race shall be formed having that identity and permanence of properties which constitute a true breed of any kind. To the class of characters which distinguish the horses of Africa and Western Asia from those of the colder countries is applied the technical term "blood;" and a horse is termed a "blood-horse" which possesses those characters in an eminent degree. Thus, while many of the horses possess more or less of the characters denoted by the term blood, the term Blood-horse is limited to the race whose especial destination is the Course; and to this race of horses is likewise applied the term Thoroughbred, which is regarded as the more precise and sportsmanlike.

The formation of this race of horses, of mixed lineage, yet moulded to a common standard, and capable of transmitting the characters acquired to their remoter descendants, has an important relation to the history of the breeds of horses existing in the British Islands. Not only have the indigenous races their peculiar characters, acquired by the influence of climate, soil, and food, but they have the characters communicated to them by a mixture of the blood of the superior race. The thoroughbred horses of England have been employed to a vast extent to communicate the properties of increased action and spirit to the inferior races. By this means all the larger horses used for the saddle, for the chase, for cavalry, for the innumerable lighter carriages of every kind, nay, sometimes for the labour of heavy draught, have had their characters modified by an admixture, more or less, of what is termed blood.

The history and character of the British Race-Horse, and the institution of games to which it is rendered subservient, will demand a more detailed investigation; but, before proceeding with this subject, and with an account of the other races of the country, we shall consider the Horse as he is presented to us in another part of the world, where, in regions of boundless fertility and extent, he has been subjected to the influence of new agents, and regained his natural liberty under circumstances the most favourable to the extension of his race.

When the Spaniards, forgetful of the precepts of the immortal Genius who had guided them to the peaceful shores of the New World, began a war of extermination against the unoffending natives, they everywhere carried with them the Horse, and employed his powers to terrify and subdue their victims. Wherever these merciless invaders established their unjust dominion, the Horse was carried, and he multiplied with a rapidity unknown in the richest parts of the ancient continents. And now, after the lapse of little more than three centuries, he is found naturalized from the frozen Straits of Magellan to the snows of Labrador, under every variety of climate and country. From the oppressors he has passed to the victims; and the most savage tribes of the interior, from Patagonia to the Missouri and Columbia, have been enabled to appropriate this gift of Providence, and employ him for their mutual destruction.

The most remarkable circumstances attending the history of the Horse in Spanish America, is his escape from human control and multiplication in the state of liberty. This first took place, according to AZARA, about the year 1535, when the city of Buenos Ayres was suddenly abandoned by its inhabitants, who in their flight left behind them on the plains five horses and seven mares, which had been brought from Andalusia. These soon multiplied and gave origin to those innumerable herds which people the boundless plains southward and westward of the Rio de la Plata; while others, escaping from the settlements north of the same river, mul-

HISTORY.

desired for the perfecting of the Horse. If, in certain parts, a too humid atmosphere, and rank vegetation, are calculated to give grossness to the animal form, there are others embellished with every gift that can give to it lightness, buoyancy, and grace. There are regions more pure of air than the Caucasian Mountains, or the Syrian Plains; and were but a tenth part of the care bestowed on rearing the Horse in these beautiful countries as in the deserts of the wandering Bedouin, it cannot be doubted that South America would produce horses equal to any in the world.

North America seems equally adapted to the temperament of the Horse as any similar countries in the Old Continent. The Mexican horses are derived from Spain, and seem in no other respect inferior to the European than a less careful management may account for. Mexican horses have likewise escaped into the woods and savannahs of the prodigious countries which extend northward and westward from the Gulf of Mexico; but they have not multiplied in the same numbers as in the plains of the Plata. They have extended northward even to the Rocky Mountains, and the sources of the Columbia, in the 52d or 53d parallel of latitude. The Indians of the country have learned to pursue and capture them, employing them in hunting, and transporting their families from place to place; the first great change that has taken place for ages in the condition of the red man of the North American woods. The highest ambition, we are told, of the young Indian of these northern tribes is to possess a good horse for the chase of the buffalo. The Ossages form large hunting parties for the chase of horses in the country of the Red Canadian River, using relays of fresh horses until they have run down the wild herds. The horses in these parts are yet more precious in the estimation of the Indians than in the countries of the South, where they have multiplied more. To steal the horse of an adverse tribe, Dr RICHARDSON informs us, is considered by the people as an exploit nearly as heroic as the killing of an enemy; and the distances they will travel, and the privations they will undergo, in these predatory excursions, are scarcely to be believed. So precious do they hold this new gift, that an Indian who owns a horse will scarcely continue to sleep after nightfall, but will sit at the opening of his tent, with the halter in one hand, and his gun in the other, the horse's legs at the same time being tied with thongs of leather. Notwithstanding of all his care, it sometimes happens that the wearied hunter, suffering himself to be overcome by sleep for a few minutes, is awakened by the noise of the thief galloping off with his plunder.

The Anglo-Americans, the Canadians, and the European Colonists of the West India Islands, have all acquired the domesticated horse. The horses of Canada, chiefly of French lineage, are coarse and small, but hardy, muscular, and useful. Those of the United States are of every variety, derived originally from England, but crossed by the modern English racer, and even by the horses of Syria and Arabia. From this cause, and the great variety and extent of these countries, the inhabitants of the States have a very mixed race of horses, many of which are excellent. It is the character of this people to carry ardour and boldness of execution into every favoured pursuit, and the improvement of their horses at this time occupies much of their attention. They are fond of horse-races, particularly in the Southern States, and have adopted to a certain degree the usages of the English Turf. The nature of their country leads them to cultivate useful horses for the road, and for their innumerable private and public carriages. They prefer the trot to the paces more admired in the Old Continent; and having directed attention to the conformation which consists with this character, the fastest trotting horses in the world are to be found in the United States. The breeds of the West India Islands are those of the parent states. The horses of Cuba are derived from Spain, and retain the distinctive characters of the parent stock. Those of the English Colonies have been improved by the continued intercourse with the mother country.

of practice do they need to exceed the age of two years and a few months, whereas the older breeds were not usually fattened for the market until late in their third, or until their fourth year. The females are not regarded as so prolific as those of the older breeds, nor are the lambs so hardy or quickly covered with a coat of wool, nor are the mothers such good nurses; and yet the breed is not deficient in these properties, except where such refinement of breeding has been practised as to produce a too delicate temperament. In this breed the hind and fore quarters more nearly approximate in weight than in the less cultivated varieties. The fatty tissue, too, is more equally spread over the external muscles, and tends to accumulate less about the kidneys and internal parts, and hence the breed has never been so much a favourite with the butchers as the less improved races. The flesh, as of all the long-woolled breeds, is more lax in the fibre, and less delicate, than that of the smaller breeds of the mountains, forests, and downs; but the mutton does not seem in any respect to have been inferior to that of the older breeds of the same class.

Mr BAKEWELL, it has been said, early conceived the idea of letting his rams on hire in place of selling them to the breeders. The animals were exhibited at Dishley at a stated time, in the latter end of July, or beginning of August; and the hirers put their own valuation on the rams they selected, and the offers were accepted or refused, without any auction. Certain conditions were understood or stipulated for, but no written legal agreement was made, every thing being trusted to the honour of the parties. About the middle of September, the animals were sent to their destination in carriages hung on springs, and about the beginning of December, the hirer was expected to return them in safety; but if a ram died from any cause while in the hands of the hirer, the loss fell upon the owner. The whole system manifested a wonderful degree of confidence and mutual good faith, and contributed in an essential degree to the diffusion of the new breed. Contemporaries and successors of Mr BAKEWELL adopted the same plan, and the sums expended by distant breeders in procuring, by this simple mean, the new breed of which Leicester was the centre, were surprisingly great. Up to the present time the practice has been carried on by breeders of the first distinction, some of whom acquired the unrivalled stock of BAKEWELL after his death, and are understood to have preserved it unmixed to the present hour. Nor was this system long confined to the county of Leicester, but it extended to other parts of the kingdom. Mr CULLEY, who had been a pupil of BAKEWELL'S, early established it on the large scale in the north of England in the county of Northumberland, and various breeders, whose stock had acquired the necessary breeding and reputation, adopted it; so that there was scarcely a district of the Long-woolled Sheep in which one or more breeders did not pursue the practice of letting rams. Not only did the system facilitate the diffusion of the new breed, but it contributed in an eminent degree to maintain its purity and goodness. It even enabled a certain class of breeders to direct attention to the rearing of rams as a distinct profession, and thus created a division of labour in the practice of breeding singularly conducive to its perfection.

The formation of the New Leicester Breed of Sheep may be said to form an era in the economical history of the domestic animals, and may well confer distinction on the individual who had genius to conceive, and fortitude to perfect, the design. The result was not only the creation of a breed by art, but the establishment of principles which are of universal application in the production of animals for human food. It has shown that there are other properties than size, and the kind and abundance of the wool, which render a race of sheep profitable to the breeder; that a disposition to assimilate nourishment readily, and arrive at early maturity, are properties to be essentially regarded; and that these properties have a constant relation to a given form, which can be communicated from the parents to the young, and rendered permanent by a mixture of the blood of the animals to which this form has been transmitted. BAKEWELL, doubtless, carried his principles to the limits to which they could be carried with safety and profit to the owner of Sheep. Looking to symmetry and usefulness of form as the essential characters to be cultivated, he was too apt to regard the others, not merely as secondary, but as unimportant. He is reported to have said that he did not care whether his Sheep produced wool at all, and he endeavoured on all occasions to show the inutility of size as compared with the fattening property. But a close and abundant growth of wool, it is known, is connected with a healthy state of the system, and with the power of the animals to resist cold and atmospheric changes, and a certain size is found by the experience of all breeders of Sheep to be an element in the profit to be derived from them. Every owner of Sheep is taught by the result, that an animal of a size to fatten to 40 lb. the quarter is more profitable than one that is capable of reaching only to 30 lb. in the same time. Weight of body, therefore, and the nature and productiveness of the fleece, are not to be overlooked in the cultivation of Sheep; and although they may be regarded as secondary properties, they cannot be held to be unimportant ones. But if BAKEWELL carried his principles of breeding to an extreme, there is no reason why his successors should not now profit by the knowledge acquired by observation and experience, and cultivate a profitable size and suitable fleece, as far as these consist with the other properties sought for. BAKEWELL was compelled in a sense to confine himself to his own stock, and to the blood of one family, in order to preserve that standard of form which he had produced. From the subsequent multiplication of the New Leicester Breed, modern breeders are relieved from all necessity of this kind. They can obtain individuals of the form required from different families of the same breed, and need never, by a continued adherence to the blood of one family, produce animals too deli-

cate in form, deficient in weight of wool, and in that hardiness and soundness of constitution, which are even more necessary than the perfectness of individual form for the safety and profit of the breeder. The sacrifice of the secondary properties which BAKEWELL did not hesitate to make, was the result of circumstances which do not now exist; and the present feeling of breeders is to maintain a larger and more robust form of the animals than seemed good to the earlier improvers. Thus the Cotswold Breed of Sheep, though far inferior in form to the pure New Leicester, is maintaining a successful rivalship with it over a large extent of country: the lowland Gloucestershire, the Devonshire, and many of the Lincolnshire agriculturists, are propagating a larger race than is approved of by the Leicester breeders; and even in the north of England, where the Leicester Breed was early established, a heavier race is preferred to the purest of the Dishley stock.

But whatever diversities of opinion may exist with respect to the degree of breeding, as it may be called, which it is advisable to communicate to the several varieties of Sheep now comprehended under the common denomination of Leicester, no doubt can be entertained of the vast benefits conferred on the breeders of the country by the formation and diffusion of the beautiful breed of BAKEWELL. Its superiority over all the older races of the long-woolled districts is attested by the degree in which it supplanted them, and the eagerness with which it was everywhere received. In less than fifty years from the first establishment of the shows of Dishley, it had either superseded all the older Long-woolled Sheep of the country, or been so mingled with them in blood as to have effaced their former distinctions. Not only did it supplant or become mixed with the older races of heavy Sheep, but after a time it effected an important change in a great part of the lighter Sheep of the country. In many cases it has become mixed in blood with them, and in many it has caused a substitution of the heavy-woolled for the light over large tracts of country, so that entire districts, which little more than twenty years ago were stocked with the short-woolled breeds, have not now one flock of them remaining. In every way, then, the diffusion of this breed has added to the value of the live stock of the country. It has caused a superior race of animals to be reared in former districts of the down and forest breeds, and extended over the richer country one more suited for general cultivation than the older and coarser races, and has been the means of communicating to the former varieties of Long-woolled Sheep a uniformity of character eminently favourable to farther improvement by multiplying the animals of a given breed which can be selected for breeding. It has even improved the agriculture of the country in an eminent degree, by calling forth a larger production of forage and herbage plants for supplying food to a superior race of animals.

Objections have been from time to time urged against the extension of this breed, founded on its supposed inferiority in size, in growth of wool, in hardiness, and fecundity of the females, to some of the breeds which it supplanted. The inferiority in size has been generally exaggerated with relation to this breed, and in all cases it produces a greater weight with the same bulk of body; and even where it is deficient in weight, there has been a compensation in that tendency to arrive at an earlier maturity, in which it eminently excels all the races which have preceded it. If the wool shall be less in quantity, or inferior in certain properties, to that of some of the older varieties, it must not be forgotten, that the most esteemed of these varieties, as the Old Lincoln and Teeswater, were not suited for that extensive diffusion, which has given so great a public importance to the breed of BAKEWELL, and that the extension of the new breed has added prodigiously to the total quantity and value of the long wool produced in the country. With respect to the supposed deficiency of this breed in hardiness, and fecundity of the females, it is to be observed, that this, where it really exists, is the result of that refinement in breeding which would equally affect any race of Sheep subjected to the same treatment. The more we remove a race of animals from the natural state by stimulating the system to an early maturity, the more we may expect them to lose that hardiness which is proper to them in a ruder condition. The New Leicester is a breed of artificial formation, and its establishment and maintenance infer a certain advancement in agriculture, the due supply of cultivated food, and that care of the animals which their acquired habits and temperament demand. It is not denied that the New Leicester breed is more delicate and less prolific than some of the coarser races whose place it has taken; but these defects exist only in a degree to be injurious where refinement of breeding is carried to an excess which every breeder has now the power to avoid.

The BREEDS OF SHEEP of the British Islands which have been generally referred to, or of which particular descriptions have been given, may be thus classified :—

1. The Zetland and Orkney Breeds, of the variety *brevicauda*.—They inhabit the most northerly islands, and are distinguished by their bearing a fleece of fine soft wool largely intermixed with hairs. The purest of them are found on the remoter Islands of Zetland. They are hardy, wild, and of small size, and do not merit extension beyond the countries which they now occupy.

2. The Older Soft-woolled Sheep of Scotland.—They are of small weight, have long lank bodies, and bear a short soft wool fitted for the manufacture of flannels, but deficient in the property of felting. These varieties are now nearly extinct, or confined to the remoter islands and islets of the Hebrides.

3. The Sheep of Wales, which may be divided into two classes; 1. The Sheep of the Higher Mountains, horned, of diminutive size, usually of a dark colour, and bearing soft wool largely intermixed with hairs; 2. The Hornless Soft-woolled Sheep, likewise of small size, bearing wool of a soft texture, fitted for the manufacture of hose and flannels, but deficient in the property of felting. To the typical forms of these races all the Mountain Sheep of Wales are more or less allied. They are valued for the delicacy of their mutton, and are carried in numbers to the lower country for the purpose of being fattened. They are hardy, but impatient of restraint when removed from their native pastures. Allied in their character to the Mountain Breeds of Wales are the Sheep of the Wicklow Mountains, now disappearing, in the pure state, from the effects of crossing.

4. The Kerry and other Sheep of the high lands of Ireland, wild, slow in arriving at maturity, and producing a fleece of medium softness, but irregular and mixed with hairs.

5. The Black-faced Heath Breed, inhabiting the central chain of heathy mountains and moors which extend from Derbyshire northward. These sheep have long been carried to the mountains of Scotland, and now extend all northward through the Northern Highlands to the Pentland Frith. They are armed with horns, and are the hardiest and boldest of all the races of British Sheep. They have dark-coloured faces and limbs, and bear shaggy fleeces of coarse wool. Their characters change when they are naturalized in the less rugged mountains and moors. In the lower heaths of Yorkshire they approximate, through the coarse and unthrifty breed of Penistone, to the larger sheep of the plains: in other cases they pass into the finer-woolled sheep of the Commons, lower Heaths, and Forests. They produce a juicy and well-flavoured mutton, and are brought in great numbers from the mountains to be fattened in the lower country.

6. The Cheviot Breed, derived from a limited tract of green hills in the North of England, and thence widely spread over the mountainous districts of Scotland, and of some parts of England and Ireland. These sheep somewhat exceed in weight the Black-faced Heath Breed: they are less robust, and less suited to a country of heaths, but yet they are amongst the hardiest of our mountain sheep. They are destitute of horns in both sexes, and bear wool of medium fineness, fitted for preparation by the card, and employed in the manufacture of the coarser woollen cloths.

7. The Old Norfolk Breed, reared in the heathy parts of the counties of Norfolk, Suffolk, and Cambridge. They are a strong and agile race of sheep, armed with horns in both sexes, bear a clothing wool of medium length, and are greatly valued for the excellence of their mutton. They produce admirable crosses with the more highly cultivated breeds, and especially with the South Down, from which cause they are rapidly diminishing in numbers in the pure state.

8. The Breeds of the Older Forests, Commons, and Chases.—These vary in their aspect, size, and properties, with the localities in which they have been naturalized. They have often dark or gray faces and limbs, have sometimes horns, and are sometimes destitute of horns, and bear, for the most part, a short felting wool. They have been continually diminishing in numbers with the appropriation of commons and the improvement of the country, so that few now remain without a mixture of the more cultivated breeds. In the West of England, however, are still to be found the Dartmoor and Exmoor breeds in considerable numbers, the former occupying the high lands of Devonshire in the forest of Dartmoor; the latter, a rugged district of limited extent at the sources of the river Exe in Somersetshire. They are both very wild and hardy races of small sheep, and differ from the other Forest Breeds by producing wool of medium length, and more fitted for preparation by the comb than the card.

9. The Ryeland Breed, the remains of some of the smaller fine-woolled varieties of the western counties. These sheep are hornless, of small size, and of good forms, patient of scanty food, and productive of a fine short felting wool, which was long the most esteemed for the making of cloth of any in England. This breed, from the substitution of the larger varieties, and the effects of crossing, has been long diminishing in numbers, and is now nearly extinct.

10. The South Down Breed, derived from the chalky hills of Sussex on the British Channel.—It is to be classed amongst

the Down and Forest Breeds, but it has been made to surpass them all by the effects of breeding and careful culture. It has been widely spread over all the south-eastern counties of England, and has passed into districts beyond the countries of the chalk, taking the place of the pre-existing breeds of the downs and commons. The sheep of this breed are destitute of horns, have dark-coloured faces and limbs, and produce a short felting wool fitted for preparation by the card. Their size varies with the locality and the taste and opinions of breeders, but they are of greater weight, and bear heavier fleeces, than the older sheep of the Sussex Downs. They are adapted to a lower range of pastures than the Black-faced Sheep and Cheviot Breeds, and are better fitted for a dry and temperate climate than for a cold and moist one.

11. The Old Wiltshire.—This and the other varieties of the larger fine-woolled Sheep of the central counties of Chalk may be said to be now extinct beyond a few scattered remnants. They produced good felting wool, and fattened to a considerable weight; but they were of coarse forms, and have universally yielded to the progress of the more highly cultivated South Downs.

12. The Dorset and Pink-nosed Somerset Breeds, naturalized in the calcareous district of the south-western counties. They have horns in both sexes, bear a clothing wool of medium quality, and are noted beyond any other breed for the facility of the females to receive the males at an early season. This latter property has caused them to be extensively cultivated for the rearing of house-lambs. They have now been much diminished in numbers by the effects of crossing, and the substitution of other breeds regarded as more profitable. Allied to these varieties is the Isle of Portland Breed, of small size, and of little economical importance beyond the narrow district which it inhabits.

13. The Merino Breed, derived from the mountains of Spain, but partially naturalized in England. It bears the finest wool of any known race of sheep. On account of this property it has been extensively diffused over a great part of Europe, and carried to America, the Cape of Good Hope, and the Colonies of England in Australia. The individuals, however, are of defective forms, of tender constitutions, deficient in the power of yielding milk, and slow in arriving at maturity. For these reasons the Merino Breed, notwithstanding the abundance and excellence of its wool, has been received with little favour in England, and is deemed inferior in value to the more improved varieties of the country.

14. The Long-woolled Sheep, comprehending, 1*st*, the pure New Leicester Breed; and, 2*d*, the varieties more or less intermixed with it in blood, of which the principal are: 1*st*, the larger class of Lincolnshire Sheep; 2*d*, the Romney Marsh Breed; 3*d*, the Cotswold Breed; 4*th*, the Devonshire Notts; 5*th*, the Long-woolled Irish varieties. All these sheep are of large size, are destitute of horns in both sexes, and bear long wool, unsuited for preparation by the card, but eminently fitted for preparation by the comb, and the manufacture of stuffs termed Worsted. They are the kinds of sheep more especially adapted to the plains, and the districts where artificial food can be reared in the necessary quantity. They have been continually increasing in numbers with the extension of tillage and the general improvement of agriculture. Of the several varieties, the New Leicester Breed occupies the first class with respect to form and the aptitude to fatten readily. The larger Lincolnshire, the Romney Marsh, the Cotswold, and the improved Devonshire Breeds, have each properties which render their cultivation profitable under particular circumstances. The Irish varieties have not yet generally attained to the perfection at which the others have arrived.

THE GOAT.

HISTORY.

Of the ruminating animals, the most varied in their forms, the most beautiful and swift, are the Deer and Antelope tribes; the former furnished with solid antlers of bone, which, in all the species but one, are confined to the male, and which fall off after the season of sexual intercourse; the latter possessed of hollow horns, like those of the Ox, the Sheep, and the Goat, enveloping permanent nuclei of bone proceeding from the forehead. Of the many species of Deer, one only, the Reindeer, an inhabitant of the northern glacial region, has been subjected to true domesticity, although individuals of the other species may be readily tamed to submission and dependence. Of the Antelope tribes, all the species remain in a state of liberty, apparently endowed with instincts which cause them to shun the dangerous vicinage of man. But the Antelopes, wild, timid, and indocile as they are, approach by insensible gradations to the forms of those animals which Nature has fashioned to subject themselves to the physical force and moral influence of our race. At one point they are connected with the massive forms of the Bovine group, at another they connect themselves with the Sheep, at another they pass into the Goats so nearly, that the line which separates the species scarcely forms a natural boundary. The chief distinction is in the bony nuclei of the horns, which, in the Antelopes, are hard and solid; in the Goats cellular, and communicating with the frontal sinuses. As the Antelopes pass into the Goats, so the latter pass into the Sheep. The internal organization of both the families is the same, they bear their young for the same period, have a similar sound of the voice, and they breed with one another, giving birth to a hybrid progeny partaking of the characters of the parents. Both are covered with a mixture of hair and wool, but in the Goats the true wool never predominates over the hair so as to form the essential covering of the body. The horns of the Goat are more straight and upright than those of the Sheep, though in some varieties of Goats the horns are spirally twisted, and in some varieties of Sheep, as in the short-tailed kinds of northern Europe, the horns are as straight as in the Goat. The Goat has generally bristly hairs on the breast, throat, and lower jaw, forming a distinct beard; but in some goats these are wanting, and in some of the ruder varieties of Sheep a beard appears, although it is never so fully developed as in the male of Goats. The Goat has a short tail, naked below, and carried more or less upright, but this character likewise exists in certain races of Sheep, as in those of the Zetland Islands, and generally in the other races of the extreme north of Europe. The skin of the Goat emits a peculiar musky odour, which, so far as is known, does not exist in any race of Sheep. Yet there are Goats in the countries of the East which are destitute of the hircine odour. It is said, indeed, that the Sheep is distinguished from the Goat by the former possessing interdigital glands; but this character is not ascertained to be universal; and it must, therefore, be admitted that all the characters of form employed to discriminate the two groups are technical and trivial. It is chiefly by the general aspect and habitudes of the species that we can separate them into genera. The Goat always approaches more in form and habits to the Antelope tribes than the Sheep, and may be regarded as the connecting link between them. While the Sheep, in the state of domestication, is comparatively submissive and timid, the Goat is restless, bold, and independent, even when most enslaved. He is familiar and capricious, wanders at will from his fellows of the flock, and seeks the craggy summits of the mountains, where his native plants are to be found. He boldly faces the enemies that assail him, and manifests a greater confidence in his human protectors than the Sheep.

From the earliest period of human societies, this wild and erratic creature seems to have been subjected to the power of man. We read of him as coeval with the Ox and the Sheep in those fair regions of the East, where the first dawn of civilization appears through the mists of time. He entered into the mythological systems of the first nations, and, by the earliest observers of the heavens, was appointed to be a sign in the Zodiac, with Aries and Taurus, his fellows in the service of man. The sacred writings continually refer to the Goat as forming, along with the Sheep, the Ox, and the Camel, the riches of the patriarchal families. He is one of the animals permitted by the laws of Moses to be used as human food, and he is ordained to be employed

HISTORY.

in a remarkable religious ceremony. He was cultivated by the Hindoos from the earliest times; and he is figured on the sculptured monuments of the Egyptians, in their representations of mystic emblems, religious rites, and rural labours. By the earliest writers of Greece and Rome he is continually referred to as yielding food and raiment; and superstition connected him with the attributes and service of the Gods. He was dedicated to JUPITER CONSERVATOR, and sacrificed to APOLLO, DIANA, BACCHUS, and the PAPHIAN VENUS, and his skin was the ægis of the Goddess of Wisdom and Arms. His form was one of the attributes of PAN and the SATYRS, indicating the procreative power and rustic plenty. He was domesticated by the Lybians and the nations that stretched along the southern shores of the Mediterranean to the mountains of Atlas. He was cultivated by the Dacians, Sarmatians, and other nations, stretching from the Euxine into the wilds of Scythia. The Gauls and all the Celtic people of Europe appear to have been possessed of him in the domesticated state, using his hair and skin for garments, and his flesh and milk for food. Up to nearly the present day, the descendants of the pristine Celtæ cultivated the Goat as one of the most useful of the animals given to them for food. Until a recent period, the Cambro-Britons and the Celtic people of the mountains of North Britain and Ireland, made greater use of the Goat than of the Sheep, and many of their appellations of families, places, mountains, rivers, and natural objects, are derived from the name which it bears in the Celtic tongue. In like manner the Scandinavian, the German, and other Teutonic nations, who had migrated in the first ages into Europe from the East, were possessed of this gift of Providence, used his spoils for raiment and food, and coupled him with their wild superstitions. In short, the Goat appears to have been domesticated wherever the traces are found of that great Western Family of mankind, which, united by analogies of form, speech, and traditionary legends, has manifestly been derived from a common source and spread from a common centre. But the domesticated Goat was not confined to this division of the human race. It extended, beyond a question, all through the boundless regions of Eastern Asia to the ocean, comprehending tribes and nations, which, however distinct from the western family of the human race in aspect, character, and speech, yet agreed with it in this, that the same domesticated animals ministered to the wants of both. But the insular continent of New Holland never possessed the Goat; for no trace of this, or any of the domesticated animals which had elsewhere followed the footsteps of man, was found at its discovery in this new world. Neither did it exist in any of the Polynesian Islands; and more strange and incomprehensible still, no vestige either of the domesticated Goat, or of his universal companions in the ancient world, the Sheep, the Ox, and the Horse, was found in the great American Continent, though peopled from end to end.

The wild animals of the Caprine group which have been as yet discovered, and described by naturalists, are the following:—

1. CAPRA IBEX, the Alpine Ibex.
2. CAPRA CAUCASICA, the Caucasian Ibex.
3. CAPRA SIBIRICA, the Siberian Ibex.
4. CAPRA NUBIANA, the Nubian or Abyssinian Ibex.
5. CAPRA ÆGAGRUS, the Ægagrus.
6. CAPRA JEMLAHICA, the Jemlah Goat.
7. CAPRA JAHRAL, the Jahral Goat.

The Alpine Ibex, the Bouquetin of the natives of the Alps, the Stein-bok, or Rock-Goat of the Germans, inhabits the Pyrenees, the Alps of Switzerland, and the Tyrol, and probably other mountainous parts of Europe. He resembles the domestic Goat in his external form, but surpasses it in stature. He is protected by a coat of lank hair covering a down of delicate wool, which falls off in the warmer season. The colour of his fur is a greyish dusky brown, fawn coloured on the belly, and whitish on the inner part of the thighs, the inside of the ears, and a part of the tail. He has a beard, and a dark brown ridge of bristly hairs extending from the neck to the tail, which is short and naked underneath. He has large black horns, bending backwards, and turning outward towards the points. His hoofs are large, widely cleft, and sharp at the exterior edges, so that he can fix himself securely on the points and shelving sides of rocks. This conformation, joined to his surpassing power of balancing his body, and the great strength of his posterior limbs, enables him to make those amazing bounds from crag to crag, by which he is enabled to traverse the wilderness of rocks which he inhabits. He has been seen to spring up the steep side of a precipice of many feet, nay, striking the sides to give himself a fresh impetus, ascend to the perilous summit as if by a single effort; and, on the other hand, to precipitate himself from an eminence, alighting securely on the verge of the precipice. It is believed by the hunters of the Alps, that, when springing from a great height, he bends his head beneath his fore-legs, so as to break his fall by striking the rock with his horns. It is rather to be believed that his power of thus precipitating himself, is due to his nice power of balancing his weight, and the conformation of the horny covering of his feet. The female resembles the male, but her horns are shorter, more slender, and less curved. She has two mammæ, forming an udder. She goes with young somewhat more than twenty weeks, and produces one, or often two, at a birth. She receives the male about the end of October, so that the kids may be

born when the new shoots and leaves of the vernal season appear. When about to give birth to her young, she seeks some lonely place where she may be safe from surprise, usually near some rivulet or spring, proceeding from the glaciers and mountains of snow which surround her. The kids, when born, are covered with a short grey fur of hair and wool; their limbs are stout, and their bodies light and buoyant; and in a few hours they are able to follow the dam, who vigilantly guards them from the attacks of eagles and other beasts of prey.

These wild and powerful Goats are gregarious, and found in small flocks, but individuals separate from the herd, and form their solitary lairs like the stag and other deer. At the rutting season, desperate conflicts take place for the possession of the females, the stronger expelling the weaker, and thus fulfilling a natural provision for preserving the properties of the race, by giving the privilege of propagating it to the most vigorous. They inhabit the highest parts of the mountains, near the line of perpetual congelation and the limits of vegetable life, and beyond the range of the wildest of the Antelopes. They feed on the herbaceous willows, the juniper, the crowberry, and other plants of the higher mountains. In winter they descend to the lower slopes of the hills, but never venture into the plains and woods of the level country. They have the senses of sight, smell, and hearing, in exquisite perfection. Perched on the loftiest peaks, in the region of clouds and mist, they watch the motions of their enemies, and on their approach give signal of danger to their comrades by a shrill whistle, when all betake themselves to the neighbouring mountains of rock and everlasting ice, where human foot cannot follow them. Yet they are made the subject of the chase by the hardy hunters of the Chamois Antelope, who steal upon them in their lonely lairs, or bring them down by the fatal ball from the distant precipice. When brought to bay, it is said they have been known to precipitate themselves upon their pursuers, and hurl them down a precipice. Incessant persecution has thinned their numbers, so that in the mountains of Europe, where they once abounded, they are now scarcely to be found.

This creature, so powerful, vigilant, and wild, is yet formed to submit himself to human control. When the kids are taken young, they are tamed with facility, and adopt the habits of the domesticated flock. They breed with the tame race, when kept together; and it is an old opinion of the shepherds of the Pyrenees and Alps, that Bouquetins sometimes come down from the higher mountains and mingle with the females of the flock. The offspring of these supposed unions, are said to be larger and more robust than the common Goats, and are selected by the shepherds to be leaders of the flock.

The Caucasian Ibex, inhabiting the mountains of Taurus and the Caucasus, so nearly resembles the Alpine Ibex, in habits, colour, and form, that there seems to be scarcely sufficient reason for regarding it as specifically distinct. The principal divergence is in the horns; but how greatly the horns of the ruminating tribes vary with age and place, is known in other cases; and it is altogether probable, that the Ibex of the Caucasus is no other than the Ibex of the Alps of Europe: and the same remark applies to the Ibex of the Uralian mountains, termed Siberian. If future observation shall show that these species are identical, then the Ibex must be characterized as having a surprising range of country. He is an inhabitant of most of the great mountain ranges of Asia and Europe, stretching from the Pyrenees to the Caucasus, and thence, it may be believed, eastward to the snowy heights of central Asia, and northward, by the Uralian and other mountain chains, to Siberia and the Sea of Okotsk.

But Africa, where the forms of animal life present themselves under a new aspect, seems likewise to possess its mountain Goats. An animal, which has been termed the Nubian or Abyssinian Ibex, has been found at the eastern termination of that prodigious chain of mountains, which, more or less continuously, seems to intersect the continent from east to west. It is believed, but upon doubtful grounds, that it is the same species which is found in the mountains of Arabia, which is termed Jaal by the Arabs. The Abyssinian Ibex is described as being larger than the Ibex of Europe; as having little beard, but a ridge of long hairs on the throat and sternum, and a dark line on the anterior part of the legs and along the back; and as having immense horns bent in a half circle.*

The Ægagrus, ***Capra Ægagrus*** of Pallas, inhabits the mountain chains of Western Asia, from the Caucasus eastward by the countries of the Caspian to an unknown distance, and southward, through the high lands of Persia and Cabul, into Hindostan. It is the Pazan of the Persians; and is believed to be the animal which yields the concretion termed Bezoar, to which certain healing virtues are ascribed by the Orientals. It resembles the common Goats in its general form; it has very large horns, sometimes wanting in the females, of a brown ashy colour, marked with tubercles, and sharp at the anterior edge, bending backward and turning outward at the points. The hair of the body is a greyish-brown, with a dark ridge along the spine, extending to the termination of the tail. The beard, of a rufous colour, is long in the male, but shorter in the female, and coarse hairs extend from the throat

* Colonel Hamilton Smith.

HISTORY.

down the breast. This creature is exceedingly wild, but inhabits a lower range of altitude than the Ibex. It is numerous in the higher parts of Asia Minor, and is believed by modern Naturalists to be the parent-stock of most of the domestic Goats.

The Jemlah Goat, *Capra Jemlahica* of Colonel HAMILTON SMITH, is found in the most elevated parts of Central Asia. It is described by this eminent naturalist, from a skin transmitted to the British Museum, as being nearly of the size of the Ibex, and as having the horns nearly in contact at the base, of a pale ashy buff colour, nodose, very depressed, nine inches long, bending outwards, then turning suddenly so as to meet nearly over the neck. The bones of the head are dense and ponderous, the tail is very short, and there is no true beard. The colour of the hair, with the exception of some darkish streaks, is a dull light fawn, with locks of brown interspersed; and on the cheeks the hair is long and coarse, hanging like a lion's mane on each side of the head. Nothing is known of the habits of this beautiful Goat. Its external characters show it to be specifically distinct from the Ibex of the Caucasus and Europe.

The Jahral Goat, *Capra Jahral* of HODGSON, has been found in the mountains of Nepaul. It is described as having the head finely formed, full of expression, clad in short hairs, and without any vestige of beard. It is of a compact and robust make; is found solitary or in flocks; is bold, capricious, wanton, pugnacious, and easily domesticated. It has the horns nine inches in length, smooth, and sharpened towards the points, and not turned inward or nodose, like those of the Jemlah. It is clothed with a coat of hair covering a fine and delicate wool, of one length and colour. Superficially the hair is brown, but internally it is blue, and the mane is for the most part of the same colour. The tongue, the palate, and the skin of the lips, are black, and the iris is of a deep reddish hazel.*

Such are the wild of the Caprine family which naturalists have discriminated; but how far the list yet remains to be corrected, or extended, is unknown. The great mountains and elevated plains of Central Asia have as yet been imperfectly opened to European research, and the paths of the traveller are but as specks and lines in the countries to be explored. The boundless terraces and interior mountains of the African Continent, which may be regarded as the centre of a distinct order of living beings, may be said to be as yet untrodden by the foot of civilized man; and we know nothing of the treasures which their Fauna may contain, beyond the animals which approach the coasts, or are found in the few countries which are accessible. We may expect that, as future explorers advance into the wilder regions of the two continents, the natural history of the Caprine family will be illustrated and extended. But, as domesticated Goats are found in the possession of almost all the nations of the Old Continents, a natural inquiry, even in the present state of our knowledge, arises, as to the parent stock from which these animals, so generally diffused, have been derived.

Ancient writers frequently speak of Wild Goats in a manner which leads us to conclude that they regarded them merely as the wild of the common race. But the notices of these writers are so vague and imperfect, that we do not know whether they referred to the Ibex, the Ægagrus, the Chamois Antelope, or any other species formerly inhabiting the same countries, but now driven away or destroyed. The opinion prevalent until a recent period was, that the Ibex was the parent stock of the common Goats; but since the Ægagrus has been found to be a distinct species, the general opinion of naturalists has been, that the latter rather than the Ibex, is the wild of the common Goat. But the Ægagrus does not approach nearer in habitudes and form to the common Goats than the Ibex, and although the latter inhabits a higher range of mountains, he seems to resign his natural liberty with equal readiness. Further, the Jemlah Goat, and, by analogy, we may believe, others of the genus, seem to be all endowed with the faculty of resigning their natural freedom and submitting to domestication. The most probable supposition therefore is, that the domesticated Goats have been derived not from one, but from different species. Not only do the Goats of different countries differ from one another, but there exist in the same country, under the same conditions of climate and food, races so divergent, that it is scarcely possible to believe that they have not been derived from stirpes distinct in the wild state. The Syrian Goat, so called, with a convex face and with udders in the female hanging to the ground, is as different from the Common Goats of the same country as the Jackal from the Wolf, and has retained, as we know from ancient notices, its distinctive characters for twenty centuries at least, that is, for nearly two thousand generations of the race. The little Goats of the coast of Guinea have been acclimated in America and the West India Islands for more than one hundred years, without making the least approach to those carried to the same countries from Europe. These and similar facts are irreconcilable with the supposition of a common descent, and cannot be accounted for by the effects of domestication. It is a probable supposition, therefore, that different species of Goats have given rise to different races now domesticated; and further, that different species of Goats have the property of procreating with one another, and that thus domesticated Goats may not only be descended from different natural roots, but produced by the

---

* HODGSON—Proceedings of the Zoological Society.

intermixture of the blood of animals originally distinct; just as it is known that certain gallinaceous fowls, of distinct species, breed together in the poultry-yard, and produce a fruitful progeny.

The Goat, extended throughout so many climates and distant countries, and subjected to conditions of life far different from those to which his natural instincts adapt him, must present himself to us with great variations of form and aspect, independently of the diversities arising from those of the parent stock. Sometimes the horns disappear in one or both sexes, and in certain cases the animals become polycerate; sometimes the hair is long, and sometimes it is as short as in the Fallow Deer; and sometimes the beard is very long and sometimes it is rudimental. The colour assumes every variety from sandy-black to milk-white, and the size and form of the body are greatly varied. Of the Goats of Central Asia the most celebrated and best known in Europe are those of Thibet, which are noted beyond all others for the soft and delicate wool they produce, and which falls off in the warmer season, affording the material of one of the most beautiful fabrics of the Eastern looms. These Goats are long in the body, having large falcated horns, stout limbs, and long glossy hair, frequently a foot and a half in length, trailing almost to the ground. The colour is frequently milk-white, but more generally it is brown, with points of a golden yellow. The wool, tending of itself to fall off at a certain season, is easily separated by means of combs, while the hair is left. It is then spun by females, and afterwards the threads are dyed of the colours required. A shawl of the finest fabric takes a year or more in making. Four persons, and in the case of plain shawls, two, sit at a frame, using numerous needles. In working, the rough part of the shawl is uppermost. A headsman superintends and regulates the pattern, and when the shawl is woven it is carried to the custom-house, stamped, and a duty paid upon it corresponding to its fineness and value.* In the province of Cashmere alone, it is computed that 30,000 of these beautiful fabrics are manufactured every year. They are in universal demand over the East for their softness, durability, and the beauty of their colours. The Goats which yield the wool are chiefly derived from Thibet; Cashmere itself being too warm for the growth of the finest wool. The Goats of Thibet and the neighbouring countries have been introduced into Europe, in the hope of producing the fine wool which gives them so great a value in their native clime. In France especially, eager endeavours were made to establish the manufacture of shawls similar to those of Cashmere; but from the small quantity of wool yielded by the Goats, and the great manual labour required, the manufacture did not succeed as a branch of national industry. Attempts, too, were made to introduce these Goats, for the production of wool, into England, but with still less prospect of a favourable result, from the humidity of the climate. The native country of these Goats, it is to be observed, being vastly elevated is subject to extremes of temperature; and the growth of fine wool being a natural provision for keeping the animals warm, it would probably soon cease to be produced in more temperate climates.

Stretching from the mountains of Thibet into the elevated steppes of the interior, northward to the Arctic Regions, eastward through Chinese Tartary to the ocean, and westward through the vast dominions of Russia to the confines of Europe, the Goats of the settled inhabitants and nomadic tribes are in prodigious numbers. These Goats are thickly covered with long coarse hair, usually of a dark hue. Southward, extending over the varied surface of Hindostan, the Goats assume a prodigious diversity of colour, aspect, and form. Sometimes they have horns, and sometimes they are destitute of horns; sometimes they have long pendulous ears; sometimes they have a short fur, like that of a fawn, and sometimes fine silky hair falling in glossy ringlets on each side of the dorsal line. The largest of the Goats of Hindostan are brought from Cabul, Thibet, and the high lands of Persia.

In the Turkish dominions in Asia, the races of Goats are greatly varied, and often very beautiful. The Goat of Angora is the native of a district of Asia Minor, and is remarkable for its long waving silky hair, which is spun into threads, of which a kind of camblet is made, esteemed beyond all other cloths of the East for its durability. The Goats of Angora have been brought to France, where they have become readily naturalized, and do not appear to be more tender than the common kinds. They have been carried likewise to Sweden, and other parts of Europe; but it may be believed that, after a time, they will lose that peculiar softness of the hair which characterises them in their native country. The soil of Angora is a clayey marl, which seems to have the property of communicating to the animals that live upon it a silky texture of the hair. The Dog and Cat of the same country are distinguished by the glossy softness of their fur, and are very beautiful.

Of the other Goats of Asiatic Turkey, one is so peculiar, that it is plainly to be referred to an origin distinct from that of the Common Goats. It is frequently termed the Syrian Goat, though it is not confined to Syria, but extends, by the countries of the Euphrates, into Hindostan, into Arabia, and, with some slight change of characters, into Upper Egypt and Nubia. This kind of Goat was known to the ancients, who mention it by the name of the Syrian and sometimes of the Damascus Goat. It is usually without horns, has the face singularly convex, long pendulous ears, delicate limbs, and short hair, usually brown. The

* Tour in the Upper Provinces of Hindostan.

HISTORY.

mammæ of the females hang almost to the ground. These Goats are more docile than any other, and, yielding a large quantity of milk, are greatly valued in the arid countries over which they are spread. In Nepaul a beautiful Goat is domesticated, which so much resembles the Syrian that both are probably derived from a common stock. It is of a slender form, with a convex face, without horns, and with long pendulous ears, which are generally white, or of a paler tint than the rest of the body.

Africa abounds in Goats as well as Sheep, resembling those of Greece and other countries of the Mediterranean. Along the Barbary coast, the Goats are very fine. From this country the Romans derived their choicest breed. But beyond the mountains which bound the great basin of the Mediterranean on the south, Nature presents a new aspect, and beyond the great Sahara, every living thing, up to man himself, seems changed. But of the Goats of the interior we learn little from the casual notices of travellers. We are told only, that Goats are very numerous, and often so nearly resemble Sheep that they might be mistaken for them. On the coasts of Guinea, however, the cruel visits of Europeans have made us acquainted with a race of Goats, which differ from any other known to us. They are of diminutive size, very pretty, with short pricked up ears, and generally with slender falcated horns. They have been carried by the slave-ships to the settlements of the Spaniards and Portuguese in America, and to the West India Islands, and they have multiplied and remained distinct from the other races.

Of the Goats of Europe, the most numerous and beautiful are those which inhabit the countries of the Mediterranean. They have generally horns, long flowing beards, and hair of divers colours, from milk-white to black. Those of Greece and the Islands of the Archipelago have been in esteem from early times. Their writers refer to the Achaian, as a breed greatly valued. The Romans cultivated the Goats largely, and their rustic writers give us numerous details regarding the modes of rearing and treating them. In modern Italy, Goats are very numerous, especially in Calabria and the mountainous countries. They abound likewise in Spain and Portugal, where they are cultivated chiefly for their milk, and the flesh of the kids. The Goats there are to be seen driven into the cities in the morning, and milked at the doors of the houses. In France, there are considerable numbers of Goats, but of no peculiar beauty of race. A strong prejudice exists against them on account of the injury they cause to the vines and forests. The district in France most celebrated for Goats is the Canton of Mont d'Or, where, in a space not exceeding two leagues at its largest diameter, upwards of eleven thousand are kept, chiefly for the supply of the city of Lyons with cheese. In the northern counties of Europe, Goats are in considerable numbers; but for the most part they are inferior in size and beauty to those of the countries of the Mediterranean. In the heathy mountains they become of small size, and are covered with a shaggy coat of long brown hair. Sometimes they have escaped from servitude, and become as wild and difficult to be approached as the Deer of the same countries.

The Goat, though obeying the law to which all the domesticated animals are subject, and presenting itself under a great variety of aspect, retains many of the characters and habits which distinguish it in the state of liberty. It is lively, ardent, robust, capable of enduring the intensest cold, and seemingly little incommoded by the extremes of heat. It is wild, irregular, and erratic in its movements. It is bold in its own defence, putting itself in an attitude of defiance when provoked by animals, however larger than itself. Its horns turning outward at the points, it rises when it fights upon its hinder legs, and throwing the weight of its body sideways, endeavours to maim its enemy by oblique strokes of the horns. The Ram, on the other hand, whose horns are turned inward, cannot use this method of attack, but rushes blindly upon his enemy, endeavouring to stun him by the violence of the shock; while the Bull must lower his head to the very ground, in order that he may receive his adversary on the points of his horns. A dog that will despise a ram, and assail a bull, is frequently cowed by the peculiar mode of attack and bold demeanour of the Goat. The Goat, like the wild species, is capable of nicely balancing its body, and its hoofs being widely cleft, moveable, and sharp at the exterior edges, it possesses the faculty of fixing itself on the shelving edges of rocks, and of leaping from crag to crag. The Arabs teach a curious feat to their Goats, which manifests their wonderful power of balancing the body. A cylinder of wood is placed on the ground, on the top of which the Goat places all his feet; another is then added, on which the animal likewise mounts; and then another, and another, until he stands at the summit of the column. When two Goats meet on a narrow ledge of rock, or the top of a high wall, the one crouches down, that the other may leap over his body. The Goat, obeying his pristine instincts, delights in high places, climbs to the tops of walls and houses, and leaps over the barriers intended to confine him. When kept in herds, individuals continually stray from the flock, and station themselves on the heights. In feeding, the flock gradually ascends to the higher grounds, preferring the shrubs and aromatic plants of the mountains to the richer herbage of the plains. Goats will eat of many bitter and narcotic plants which other animals reject, nay, of some which are deemed poisonous, as the hemlock and fox-glove. They gnaw the bark, and crop the tender shoots, of shrubs and trees; and hence they are the pest of the cultivated country, destroying the hedges, the woods, and orchards of the planter. In the countries of the vine, they are regarded as enemies whose trespasses must be curbed by the severest means. When mingled in the flock with Sheep, the Goats invariably assume the guidance of their more timorous com-

panions, leading them from the richer pastures to the more steril hills. When the Goat is kept apart from the flock, he becomes attached to his protectors, familiar and inquisitive, finding his way into every place, and examining whatever is new to him. He is eminently social, attaching himself to other animals, however different from himself. He is frequently kept in stables, under the belief that he contributes to the health of the horses. The effect, if any, is probably to be ascribed to his familiar habits, it being known that horses in their stalls are fond of companions to cheer their solitude. The Goat is frequently attached to the little carriages of children, and appears to delight in the gay equipage, and capricious commands, of the youthful charioteers. Two children, in London, having escaped from their nurse, seated themselves in their tiny vehicle, and set off, whip in hand, along the Strand. The Goat, apparently enjoying the frolic, carried them full tilt through the most crowded parts of the city, nicely avoiding every obstacle, and foiling every attempt of the passengers to arrest him. Having satiated himself and his young masters with their morning's drive, he brought them back to their home in safety.

The female of the Goat produces, in the natural state, in spring; but when food is supplied to her, she will receive the male at almost any season. She goes with young upwards of twenty weeks, and is very prolific, generally producing two at a birth, and often breeding twice in the year. The Kids are exceedingly hardy, and the most sportive of animals. The mother watches them with tender care, protecting them from every assailant. She yields a large quantity of milk in proportion to her size; a common produce is two quarts in the day for five or six months. Her milk is viscid and nourishing, little productive of oil, but abundant in the albumen of cheese. She allows herself to be milked without reluctance, and readily adopts other animals, and nurses them as if they were her own. When she has suckled such animals as the foal and the calf, it is interesting to observe how she attaches herself to them, and still watches over their safety, when their own habits cause them to separate themselves from her. In India, the children of the Hindoos, who have lost their parent, are frequently suckled by the Goat. Travellers report that, in the countries of the Negroes, this is very frequent. The Goat comes to the cradle where the infants lie, and manifests the utmost tenderness towards them; nay, when they are able to walk and play, she does not forget her maternal cares, but follows them as if to keep them from harm.

The Goat, besides the milk of the female, affords hair, which is shorn from the body, and made into certain coarse fabrics of the nature of camblets. Of this substance are formed the tents of the Arabs, of the Turcomans, and of all the migratory tribes of the Tartar countries. The hair of the Goat is likewise fabricated into ropes. With such ropes the hardy natives of St Kilda used to swing themselves over the dreadful precipices of their coasts, in search of the eggs of sea-fowls. The skin of the Goat is made into leather, which is more useful and durable than that of the Sheep. It forms the fine Morocco leather of commerce, and is largely used for sandals, boots, gaiters, and similar parts of dress. In the countries of the East, the skin is likewise made into bags, for containing water, wine, and oil; and on many rivers, as the Nile and Euphrates, it is made into sacs, for floating the inhabitants across the stream. The skin of the kid is in universal demand for the manufacture of gloves. The flesh of the kid, when very young, is nearly as delicate as that of the lamb. The flesh of the older Goats is hard and ill-flavoured, and therefore always gives place to that of the Sheep, as countries become cultivated.

In the British Islands, the number of Goats has been continually diminishing, with the extension of sheep, and the progress of agriculture. In the Highlands of Scotland, they used to be very numerous, but are now confined to a few of the remoter districts, where their milk is employed for the making of cheese. Wales long abounded in Goats: they are now in small and decreasing numbers, and the finer and larger kinds have been lost. But in Ireland, there are still great numbers of Goats, scattered throughout the country, and kept by the poorer inhabitants for supplying them with milk. The Goats of Ireland are many of them very fine: those of Kerry and the other mountain districts, resemble the best Goats of the Mediterranean, and even exceed them in size.

In this country, it is chiefly for the supply of the domestic dairy that the Goat can be regarded as of economical value. This arises from the want of demand for the flesh, even for that of the kid, which is so delicate. Were it otherwise, the Goat could be cultivated in the mountainous parts of the country with perhaps greater advantage than the Sheep. The hair of the Goat is indeed less valuable than wool, yet the skin is of greater value than that of the Sheep. The animals, too, are more hardy, and exempt from those fatal diseases which yearly destroy so great a proportion of the Sheep of the higher countries. The Goat, too, is more easily maintained, especially in countries of heath, and the females are more prolific. But an insurmountable objection exists to the extension of the husbandry of the Goat, from the want of all demand for the flesh of the fattened animal. Yet if the caprice of taste could be reconciled to the use of the kid, the Goat could be kept for the rearing of her young as a substitute for the house lambs, now produced at so much cost. The females, in this case, could be made to yield their kids at any season. They could be kept in houses and fed on the commonest hay, with occasional portions of turnips or green food of any kind. They could be maintained at less expense than the Sheep; and as they are more prolific, and yield a large supply of milk after the kids

HISTORY.

are taken away, the profit would certainly be greater than from the ewe under the same circumstances. But as the habits of a country with respect to food can with great difficulty be changed, it is to be believed that the Goat will continue to be only partially cultivated as now for the milk of the female. But for this purpose, its value as a source of household economy is much greater than many imagine. Families who keep a single cow would find a Goat or two always useful, as supplying milk when that of the other was wanting; and experience shows, that the humbler cottagers would derive a profit from having one or two of these animals, which could be maintained on food which the cow would reject. Persons even in large towns could, by means of the Goat, readily supply themselves with milk far superior to that which they can now obtain. Goats are frequently taken to sea for the purpose of supplying milk on ship-board, and they are better fitted for this purpose than any other animal.

THE HOG.

HISTORY.

THE HOG FAMILY comprehends various species, and, according to the views of modern Zoologists, several genera. All the species are allied in the form, temperament, and habits of the animals: the face is prolonged, truncated, and terminated by a moveable cartilaginous disc; the skin is thick; the body is covered more or less with bristles and hairs; the neck is strong and muscular; the limbs are stout and short. All the species feed on plants, but especially on roots, which their strong and flexible trunk enables them to grub up from the earth. They devour animal substances, but they do not seek to capture other animals by pursuit. Like the thick-skinned animals to which they are allied,—the Elephant, the Rhinoceros, the Hippopotamus, and the Tapir,—they delight in humid and shadowy places. They are voracious, and bold in their own defence, but have nothing of the thirst of blood which distinguishes the carnivorous tribes. Their voice is a kind of groan, or grunt, though, when wounded, they utter piercing cries: their senses of smell and hearing are eminently acute.

The species have been divided into three genera: 1*st*, The true Hogs, comprehending the Wild Hog of Europe, Asia, and Africa, the Babiroussa of the Indian Islands, the Papuan Hog of New Guinea, and the Wood Swine of southern Africa: 2*d*, The Wart-bearing Hogs of Africa: 3*d*, The Peccaries of America.

Of the true Swine, the Wild Hog or Wild Boar, *Sus aper*, is greatly the most diffused and important. He is found throughout the greater part of the Old Continent. He can be domesticated with the utmost facility, and is the undoubted progenitor of the greater part, if not of all, of the domestic kinds.

The Babiroussa, *Sus babirussa*, is found in Sumatra, Java, and other Islands of the Eastern Archipelago. He is of lighter form than the common Wild Hog. He is thinly covered with bristly hairs of a reddish-brown colour, and he is distinguished by the remarkable position of his upper tusks, which, penetrating the skin, bend upwards like horns rising from the snout. He grunts in the manner of the common Swine, but when irritated he utters a hoarse growl. These creatures associate in herds, dwelling in the impenetrable marshes of the sea-coasts, where they feed on herbs and shell-fish. When pursued, they throw themselves into rivers or the sea, and swim with ease and swiftness. They are sometimes seen in large herds swimming from island to island, or crossing the broad estuaries of rivers. It is then that they are attacked with spears by the Malays and other natives, from canoes, and slain in such numbers that the waters are dyed with their blood. The people preserve their skins and fat, which last is melted, and used in place of butter or oil. Individuals are easily tamed, and they could doubtless be subjected in any number to permanent servitude. A male and female were brought by the Astrolabe to Paris: the female bred after arriving in Europe, but the progeny perished in the second or third year, of diseased lungs, from the effects of cold; the male lived the usual term, and became very fat, feeding and grovelling in the manner of common swine. The female used to cover him with straw, and slip underneath the litter, so that both remained concealed from view.

In the woods of the large and fertile Island of Papua or New Guinea, have been found a race of small Hogs which have been classed as a distinct species, under the name, *Sus papuensis*. They are destitute of tusks, and the tail is wanting. The colour is brown, and, in the young state, five streaks of bright yellow extend along the back. The animals are caught by the natives in the woods when young, and retained in a state of captivity.

On the discovery by European voyagers of the lovely Islands of the South Seas, a kind of Hog was found in great numbers, the only large quadruped possessed by the simple natives, and affording them their principal animal food. He was held by them in a kind of veneration, and was offered up to their divinities as the most acceptable sacrifice. They could give no account of his introduction amongst them, but regarded him as coeval with themselves. They fed him on the fruit of the bread-fruit tree, either in its natural state, or made into a paste, together with yams and such other nutritive plants as the islands produced. His flesh is described by our early travellers as delicious, the fat resembling in delicacy and flavour the finest butter. It has been doubted by some whether this race is of the widely diffused Siamese breed, to be afterwards referred to, or whether it is allied to the *Sus papuensis*, or some other species yet undescribed, proper to the Islands of the Eastern Seas.

The Wood Swine, or masked African Boar, *Sus larvatus*, is a native of Madagascar, and the south of Africa. He has a

HISTORY.

larger head and shorter neck than the common swine, and he has a fleshy excrescence on each side of the face beneath the eyes, giving him a savage and hideous aspect. He has the faculty of burrowing, and dwells in holes which he has excavated. He is ferocious, prompt, and swift of foot: he does not court a contest with enemies, but, when molested in his lonely cavern, he rushes forth upon his assailants with resistless fury, snapping their limbs asunder in an instant, and ripping them up with his formidable tusks. The natives say they would as soon encounter a Lion as a Wood Swine.

Whether these fierce and powerful creatures breed with the domestic species is not known. SPARRMAN states, that he saw two of them at the house of a farmer in the province of Lange-Kloof perfectly tame. They went down on their knees to graze, and changed their posture to that of standing with the greatest ease. An individual of this species was sent by the Governor of the Cape of Good Hope to the Hague, in 1763, as a present to the Prince of Orange. He was gentle, except when offended, and then his keepers were afraid to approach him. But, for the most part, whenever his cage was opened, he came out in good humour, and frisked gaily about in search of food, devouring greedily whatever was offered to him. He was pleased to be stroked, and delighted in a rough brush. Sometimes, with his tail erect, he would amuse himself for hours, pursuing the Fallow-Deer and other animals. On one occasion, being left alone for a few minutes in the court-yard, he was found, on the return of the keepers, employed in digging the earth. He had made a large excavation over a sewer, which doubtless he intended to reach. It was only by the force of several men that he could be made to relinquish his attempt, and he expressed his grief and resentment by uttering a sharp and mournful noise.

In Africa, the family of Hogs presents itself also under a slight change of characters, constituting the Phacochæres, or Wart-bearing Hogs, so named on account of certain fleshy prominences and excrescences on the face. These creatures appear to be very wild and fierce, and are armed with tusks of great magnitude, which they use with deadly effect when attacked or disturbed in their retreats. There are believed to be two species; one of which, inhabiting Guinea, the interior of the Cape, and a vast extent of country, is the *Phacochœris Africanus*, DES.; another, found in Kordofan and Abyssinia, is supposed to be the creature referred to by ÆLIAN as the Hog with four horns, and hence has been termed *Phacochœris Æliani*. He has a mane of long bristles extending along the back, powerful tusks, and on each of his cheeks two fleshy lobes, one larger and one smaller. He is an inhabitant of forests and bushy tracts, and his principal food, like that of others of the family, is vegetable. It is not known whether any of the Wart-bearing Hogs have been reduced to domestication by the tribes of Africa, or whether they breed and form a fruitful progeny with the true Swine.

In the New World, the Hog family likewise appears, but under a distinct form. It is there represented by two species, characterized by a glandular opening in the back, whence the term *dicotyles*, signifying a double navel, has been applied to the genus. These animals, termed Peccaries, are smaller than the common swine of Europe, but resemble them in their general form. Their canine teeth are sharp, and capable of inflicting severe wounds, but do not curve upwards in the manner of tusks. The glandular openings on their backs exude a peculiar liquid, the use of which is unknown. They are nearly destitute of tail, and are covered with stiff bristles, very long upon the neck and spine, which they erect when irritated. They dig the earth with their trunk, and grunt in the manner of the common Swine, but make a loud clashing with their teeth when alarmed. They are omnivorous, but feed chiefly on vegetable substances: their flesh is leaner and less delicate than that of the common Swine. They are readily tamed, and are pleased with the caresses of those with whom they are familiarized. Of the two species, the one, the Collared Peccary, *Dicotyles torquatus*, inhabits the countries of the Atlantic from Guiana to Paraguay, and is found in pairs, or in small numbers together; the other, the White-lipped Peccary, *Dicotyles labiatus*, inhabits nearly the same regions, and congregates in herds. The habits of the latter species have been well described by AZARA and other writers. They are eminently gregarious, associating in bands of many hundreds: they traverse the country in quest of food, unimpeded by the broadest rivers, and making their way through the densest thickets. Should the cultivated lands of the settler lie in their course, they devastate every field that can afford them food, lay waste the inclosures, and trample down and devour the growing corn. They defend themselves resolutely against the beasts of prey by which they are unceasingly assailed. Erecting their long bristles, and clashing loudly with their teeth, they rush upon their assailant, and unless he shall have escaped to a tree, or saved himself by rapid flight, surround and tear him to pieces in an instant. Even the formidable Jaguar, it is said, fears to attack these united hordes. He follows them in silence, and seizing on an individual in the rear, in an instant strikes him dead, and then escaping to a tree, waits until the herd, unable to reach their enemy, pass on, leaving their wounded or dead companion behind. The Indians shoot them with arrows from trees and inaccessible rocks. They are said to be under the guidance of a leader, and to take to flight the moment he is slain. A singular description of an encounter with these creatures is given by M. SCHOMBURGK, in his account of his ascent of the river Berbice. While his men were employed in cutting a mora tree, information was brought that a herd of Indian Hogs was feeding at a little distance from the river. All the guns were immediately put in requisition, and the party started off

in pursuit. M. SCHOMBURGK himself first came upon the herd: he found them in a muddy pool of water, wallowing and enjoying themselves, the younger ones in the centre. When within fifteen yards, the sentinel observed him: his bristles rose, and turning towards the intruder, he clashed his teeth; the next instant he was prostrate, pierced by the ball of the rifle. The traveller graphically describes the bustle, the rush, the clashing of the tusks of the herd, which sought security in rapid flight in the opposite direction. They were followed by the party, and M. SCHOMBURGK himself, having given up his arms, remained alone. In a little time he heard a rushing noise approaching through the thickets, and the well known growl and clashing of teeth left him in no doubt as to the cause. The herd had divided, and a part was coming directly upon him. He stood alone, unarmed, and had not even a knife to defend himself. He knew not how he climbed the lower part of a mora tree, when past they rushed, their rough bristles erect, and their muzzles almost sweeping the ground. They came and passed, he says, like a whirlwind, and before he had recovered his astonishment he heard them plunge into the river and swim to the opposite bank.*

These little Hogs do not breed with the common race, and they had not been domesticated by the native inhabitants. They are far inferior in economical uses to the Swine of Europe, which were introduced by the Spaniards, have multiplied wherever the European settler has formed his home, and have even found their way into the woods, and increased in the state of liberty.

From the earliest times the Hog has been subjected to domestication; and the undoubted original of the domestic races of Europe, and the greater part, if not all, of those of Asia and Africa, is the Wild Hog, *Sus aper*. This powerful creature seems formed by Nature to submit himself to the uses of man; and it is not surprising that, abounding in almost every habitable region of the Old Continent, he should have been every where captured and enslaved. But we are not entitled to say that all the domesticated races of the world have the same descent. We are yet too imperfectly acquainted with the subdued races of the interior of Africa to be able to maintain that they are all descended from the Wild Hog; and in the countries of the Indian Archipelago and the South Seas, it may be that other species, endowed likewise with the faculty of resigning their natural wildness, and changing their characters under the influence of domestication, have been reduced to slavery.

The flesh of the Hog furnished food to the inhabitants of Europe, and other regions of the Old Continents, beyond all the records of tradition and history. By most of the ancient nations his flesh was in great estimation, but by others it was held in the utmost abhorrence. The Egyptians not only abstained from the flesh of the Hog, but regarded the very touch of the living animals as pollution, and the persons employed in tending them as degraded outcasts. The same feeling was entertained by the Hindoos, from whom, beyond a doubt, the Egyptians derived a great part of their arts and religious observances.

In the marvellous Commonwealth of MOSES, a like abstinence from the flesh of the Hog was enjoined upon all the people of Israel. The Levitical code upon this subject is precise: and in the precepts, warnings, and threatenings of the Prophets, the use of swine's flesh is denounced as a breach of the law, and an abomination in the sight of GOD. The Jews were not even permitted to offer this detested creature as a victim of the sacrifice, as the Egyptians were allowed to do, and as the Greeks, Romans, and other people practised. The sacrifice of the Hog is declared to be an abomination to the LORD, and is compared in the degree of guilt with the killing of a human victim, or the immolation of a dog. To precepts so clear, and denunciations so terrible, is to be ascribed that unconquerable aversion to the unclean beast which the Jewish people came at length to entertain to such a degree, that they would not even pronounce its name; and no example, mockery, or persecution, ever brought them to adopt the usages of other nations in this respect. Yet it is known that great numbers of Hogs were reared in the country of the Jews, probably for the uses of the strangers who dwelt amongst them, or for the purposes of traffic with the neighbouring countries. But even now, when all the glory of their beloved land is but to them a splendid vision,—when their altars and tabernacles have mouldered into dust with the temples of the idolators and the palaces of their tyrants,—when nearly twenty centuries have seen them scattered like chaff over every land,—the humblest mendicant that boasts the blood of JACOB would not pollute his lips with the food which his forefathers held it impious to taste.

Writers have laboured to explain the reason of this remarkable prohibition against the use of an aliment so wholesome and nutritious as the flesh of the Hog. One writer will have it, that it was owing to the filthiness of the animal, and the impurity of his food, the law carefully providing against all filth in the fields, the camp, or in cities: † another maintains that it was a lesson to the Jews to abstain from the sensuality and grossness of which this animal was typical.‡ TACITUS informs us, that the Jews abstained from it in consequence of a leprosy by which they formerly suffered, and to which the animal itself was subject; and the common opinion is, that the use of swine's flesh is calculated to produce that leprosy to which it is known the inhabitants of Palestine, and the neighbouring countries, including Egypt, were subject. To this has been attributed the rigid interdiction of its

* Menageries; Lib. of Ent. Know. vol. iii.

† MAIMONIDES, More Nevochim.

‡ LACTANTIUS, Inst.

HISTORY.

flesh for food both by the Egyptians and Jews. It may be doubted if any of these reasons are good with regard to the latter people. It is more safe to assume, that the prohibition of the use of swine's flesh was a law, of whose ultimate purposes we are ignorant, connected with the ceremonial system of the Jewish ritual. We can no more know why the Hog was prohibited than some other animals, as the Hare, whose habits are in no degree unclean, and whose flesh has never been supposed to produce leprosy or other maladies of the country.

MOHAMMED, in imitation probably of the Jews, or in compliance with prejudices existing in his own country, interdicted, in like manner, the flesh of the Hog to his disciples; and Mohammedans observe the law of the Prophet in every country, however suitable for this species of food. Here there is no Divine ordinance promulgated for purposes which to us are unknown; but the art of an impostor has prevailed against the common sense of mankind in a matter affecting the means of comfortable subsistence throughout a great part of the habitable world.

The flesh of the Hog is nutritive and wholesome, and it is an error to suppose that it is more unsuited to warmer countries than any other species of animal food. On the contrary, this kind of flesh seems peculiarly suited to the warmer countries. It is in them that the animal arrives naturally at his greatest perfection of form, and his flesh at its greatest delicacy and excellence. It is the principal animal food made use of by the Chinese, and by the people of the hottest islands of the Indian Archipelago, and it is used by the Negroes all over the burning regions which they inhabit. The practice of Europeans, who reside in the warmest parts of the Old and New Continents, shows, that not only is the flesh of the Hog not unsuited to the warmer countries, but that it is the best and wholesomest that can be used. That it is the cause of leprosy, is not in accordance with effects observed. The Egyptians and Jews, who abstained from this food altogether, were the greatest victims of leprosy, while the people of the same countries who now feed upon it, are comparatively exempt from that terrible malady.

All the older nations of Europe made large use of the flesh of the Hog. The Greeks fed much upon it, as innumerable references in their writings testify. To the Romans it afforded a large part of the food of the people. So much attention did the Romans pay to the rearing of the Hog, that their writers describe it as a branch of rural economy, under the term *porculatio*. They carried their fondness for this species of food to excess in their modes of preparing it for use, and numerous ordinances of the censors were passed against the supposed abuse. These rigid monitors prohibited the use of certain parts of the animal at festivals and repasts, as the mammæ, the glands, the muzzle; but no laws could check the brutal gluttony of the Roman people. To produce a diseased state of the liver, they fed the animal on dried figs, and then killed him by repletion with honeyed wine.* It was their custom to torture the animal to death, that a higher flavour might be given to its flesh. In the days of the Emperors, the dish called Porcus Trojanus became so extravagant with relation to expense, that sumptuary laws were passed to restrain the cost. This dish consisted of a Hog roasted whole, stuffed with animals of all kinds,—beccaficoes, thrushes, larks, nightingales, oysters,—bathed with the richest wines and gravies. The laws sought to restrain the excess of expense, but they could not cure the corruption of manners, which called for brutal banquets without regard to animal suffering.

The Hog, in the state of domestication, has spread over nearly all the world without the polar circles. He was not, however, we have seen, indigenous to America, though he was carried thither by the earliest voyagers, and has now multiplied throughout the continent, wherever the descendants of Europeans are found. Neither was he found in New Holland, though now he has been transported thither, and finds a habitat as suitable as any other on the globe. This universal diffusion seems due to the remarkable fecundity of the animal in the domestic state, his easy maintenance, and his adaptation to almost every situation. Even in the wild state the female is prolific, but this faculty increases in a remarkable degree in the state of slavery. The Sow frequently gives birth to fifteen, to twenty, nay, sometimes she has been known to produce upwards of thirty at a birth, although she has not mammæ to nourish such a number. She is comparatively a long-lived animal, living to the age of twenty years or more: she is ready to receive the male before she has reached the age of twelve months, and of giving birth to two litters in the year, or even to five litters in two years. M. VAUBAN, the great military engineer, made, long ago, a calculation of the possible produce of an ordinary Sow in ten years. He allows twelve at a litter, and excludes from his calculation the males, which yet would be as numerous as the females. The result is, that, in eleven years, which is equivalent to ten generations, there would be 6,434,838 pigs, or, taking round numbers, six millions of pigs, which is about the number existing in France. Were we to extend our calculation, says M. VAUBAN, to the 12th generation, we should find as great a number to result as all Europe is capable of maintaining; and were the calculation extended to the 16th generation, there would be as great a number as would people the whole globe. With powers of production so great as this animal possesses, it will appear that, let the consumption be ever so great, the largest means will exist of supplying it. Let us contrast this vast power of increase with that of another of the

* PLINII Historia Naturalis, Lib. viii.

HISTORY.

Pachydermata, the Elephant, and we cannot fail to discover a law of beneficent design. This vast creature might be made to overrun the whole earth, were not his reproductive powers limited. The female brings forth only once in several years, and only one at a birth; and in the state of slavery, the male refuses to propagate at all, or does so with the utmost rarity and repugnance. An instinct which we may well call divine, seems to prompt him not to produce a progeny of slaves, whose strength and sagacity might administer to the most destructive passions of the human race.

However grovelling and mean may appear the habits of the Hog, when reduced to the degradation of slavery, yet he is not destitute of sagacity, nor unsusceptible of attachment. When he lives in the cabin of the peasant, he loses much of his rudeness, suffers himself to be caressed, and recognises his protectors. Instances are known in which the Hog, for the purposes of exhibition, has been brought to perform a number of feats, displaying a marvellous degree of docility. An instance, often quoted, of the degree of education of which he is susceptible, is the case of a Sow which came into the possession of Sir HENRY MILDMAY, which had been trained by a gamekeeper to point at game in the manner of a pointer. She was of the New Forest Breed, exquisite in her sense of smell, delighting in the sport, and nearly as steady as the best trained pointers. Colonel THORNTON had a Hog trained in like manner to point at snipes and other game.

Intractable, rapacious, and selfish, as we are wont to esteem this animal, no mother is more tender of her young than the Sow, or more resolute in their defence. When the young are born, it is interesting to see the little creatures make their way to the head of the prostrate parent, to caress her and soothe her, as it were, for the pains they have caused her. Instances indeed do occur, though rarely, and never, it may be believed, in the state of nature, in which the mother devours her young as soon as they are born. We cannot account for an act so revolting, though it may not unreasonably be ascribed to pain and irritation, arising from the unnatural and confined situation in which the animal is kept, in filthy pens, and amid disturbance of every kind. It is known that the Sow is very irritable at this period, snapping at animals when they approach her; and that in proportion as she is tenderly treated, kept from annoyances, and supplied with proper sustenance, the hazard of the accident diminishes or ceases. Hogs are not insensible to natural affections: they are gregarious and social, warming one another with their bodies in cold weather; and, when assembled in herds, manifesting the utmost sympathy for one another's sufferings. Should one give signal of distress, all within hearing rush to his assistance: they gather round their comrade, and fiercely assail the largest animals that have injured him. In Calabria, where they are grazed in herds, the keeper uses a kind of bagpipe, which, when at sunset they are to be driven homeward, instantly collects them from all parts. In certain villages there is a common swineherd: in the morning, when he sounds his horn, all the pigs rush forth and follow him to the place of feeding; in the evening they return under his guidance, and when they enter the village each runs to his own sty without a mistake. In some of the southern United States, it is usual to turn the pigs into the woods, but to collect them together once a-week, by giving them salt and maize, or other favourite food. At the very hour they are to receive their weekly present, they reassemble from all parts, without a straggler. They have the sagacity always to discover the food that suits them, never being, like some other animals whose senses are blunted by domestication, poisoned by the plants they find in the wild state. Their exquisite senses of smell and touch direct them to earth-nuts and other roots, acorns, and the like, which are found buried in the ground. They are conscious of an impending storm, and carry straw, as if to shelter themselves from its violence. They are agitated when the wind blows violently, screaming and running to the sty for shelter, which has given rise to the singular saying of the country people, that "pigs see the wind." The explanation is, that the Hog dreads wetness and cold, and is eminently sensitive to coming changes of the weather.

The Hog is subject to remarkable changes of form and characters, according to the situations in which he is placed. When these characters assume a certain degree of permanence, a breed or variety is formed; and there is none of the domestic animals which more easily receives the characters we desire to impress upon it. This arises from its rapid powers of increase, and the constancy with which the characters of the parents are reproduced in the progeny. There is no kind of live-stock that can be so easily improved by the breeder, and so quickly rendered suited to the purposes required; and the same characters of external form indicate in the Hog a disposition to arrive at early maturity of muscle and fat, as in the Ox and Sheep. The body is large in proportion to the limbs, or, in other words, the limbs are short in proportion to the body; the extremities are free from coarseness, the chest is broad, and the trunk round. Possessing these characters, the Hog never fails to arrive at earlier maturity, and with a smaller consumption of food, than when he possesses a different conformation.

The Hog is an animal of vast importance, as affording the means of subsistence to the inhabitants of different countries. The quantity of food of this kind consumed in our own country is exceedingly great. The animals being reared at home for domestic use, the number brought to market, large as it is, does not give an idea of the quantity of pork produced and consumed. It is almost the only animal food which the peasants of many parts of the country ever touch; and, happily, the animal can be reared on the small scale as well as on the large, by the peasant at his cabin, as well as by the opulent farmer. His food, too, is what

HISTORY.

others reject, and which would be wasted were it not consumed by him. But the importance of the Hog as a means of human subsistence, is yet more seen in newly settled countries. It is the surest resource of the settler during his first years of toil and hardship. It is the soonest brought to maturity of all the larger quadrupeds, the most easily fed, and the least subject to accidents and diseases in a new situation.

The fat of the Hog forms a thick layer beneath the integuments. It is termed lard, and differs in chemical composition and properties from the fat of the ruminating animals. It more readily imbibes salt than any other kind of fat; and the same property being possessed by the flesh, there is no animal food better suited than pork for preservation by salting. On this account it is largely employed in the victualling of ships. When it is preserved by drying as well as salting, it forms bacon.

The rearing and fattening of the Hog presents little difficulty. The Sow goes with young four lunar months, bringing forth in the fifth, but, as in the case of all animals reduced to servitude, with some irregularity as to time. She indicates the period when she is about to produce her litter, by carrying straw in her mouth to make her bed. For a considerable time, however, before this period, she should have been separated from her fellows of the herd, placed in a warm house, supplied with suitable food, and kept carefully littered with clean dry straw. These precautions are required to allay that irritation to which she is subject at the time of producing her young, increased by her being suddenly removed from her companions, and put in a strange place. Care must be taken not to handle the young pigs, or remove them from the places in which they have been put by the dam, for she herself knows where they nestle, and in this case takes care not to crush them when she lies down. The straw, too, should be short, and in moderate quantity, lest the young should creep underneath it unperceived by the mother. During all the period of nursing, the Sow should be well fed, and the troughs so placed that the pigs may be allowed to partake of the food.

In six weeks, if the pigs have been well fed, they may be weaned, and in all cases in two months. When they are separated from the dam, they should be regularly fed three times in the day, and their food should at first consist of whey, milk, or any refuse of the dairy or kitchen, mixed with a little warm water, so as to be raised to the temperature of the mother's milk. In a short time they learn to partake of all edible substances that are presented to them, as potatoes, turnips, tares, lucerne.

The females reserved for breeding are to be sufficiently fed, and not over-fattened. The other pigs should receive from the period of weaning, until they are fit for use, a full allowance of such food as the means at our command will allow. In this manner the animal arrives the soonest at its maturity of flesh and fatness, and the younger it is when it arrives at this state the more delicate is its flesh.

Any kind of vegetable or animal food may be given to pigs in the course of being reared and fattened, and it constitutes the peculiar value of these animals that they can be maintained on almost any kind of aliment. They will feed even on herbage, pasturing in the fields and commons; but roots rather than herbage are their native food. Acorns, chestnuts, beech-mast, hazel-nuts, and other esculent fruits, are eagerly consumed by them; and in countries of forests they may be conveniently suffered to range in the woods, and find their own food. They are fond of all fruits, and hence, in the countries of the grape, the ravages which the Wild Hogs commit: in the places where cider is produced they are fed on spoiled fruits, and on the residue of the cider-mill; in the countries of the olive, on the refuse of the oil-press; and generally where the oleaginous plants are cultivated, on the refuse of the manufacture. Hay or dried fodder is not adapted to these animals, though, if chopped and boiled, they will not reject it. But their proper vegetable forage is that which is moist and succulent; and hence they will feed on clovers, tares, lucerne, sainfoin, succory, and the like. They feed eagerly on all kinds of roots and tubers, as the turnip, the potato, the Jerusalem artichoke. This kind of food they will eat either in the natural state, or when prepared by boiling. This latter process is well adapted to prepare several kinds of roots, as the turnip, for fattening these animals. They delight in an especial degree in all kinds of farinaceous substances, as meal, bran, pease or beans bruised, and generally on the seeds of all gramineous and leguminous plants, the buckwheat and others. They may be fattened on the grains of breweries, and on the grains as well as the wash or liquid refuse of distilleries. They may be fattened, too, with animal substances, and above all with the refuse of the kitchen and the dairy.

Attention to warmth and cleanliness should at every period be paid to these animals when confined. It is an error to suppose that they may be left in a state of neglect and filth. It may seem absurd to say that the Hog is a cleanly animal, yet it does not appear that his endurance of filth is matter of choice, or his rolling in the mire any thing but the effect of that love of coolness and moisture which distinguishes him in the state of nature.

When pigs are required to yield delicate pork for the table, they may be fattened in five or six months after the time of weaning: but when designed for bacon they are usually reared to the age of twelve months or more. For the former kind of management, the smaller kindly feeding pigs are chosen; for the latter, the larger varieties of the Berkshire, the improved Yorkshire, the Hampshire and others.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairlamb.

WILD BOAR & SOW.

Imported from Alentejo in Portugal, and presented to the Earl of Leicester by His Royal Highness the Duke of Sussex.

Published June 1840, by Longman, Orme, Brown, Green & Longmans, Paternoster Row, London.

HISTORY.

cast upon him with unerring aim, and in a moment hurls him to the ground. Before the animal can recover the shock, the Guacho springs upon him, and snatching the cloak from his own shoulders, wraps it round the head of the prostrate animal. He then forces into his mouth one of the bridles of the country, straps a saddle on his back, and bestriding him removes the cloak, when the animal springs upon his legs, and, by a thousand efforts, endeavours to free himself from his new master. His efforts are vain: the Guacho keeps himself firm in his seat, and, by the force of his arm and dreadful spurs, reduces the animal to entire obedience. The subjection is complete: the Guacho pursues his journey on the captive horse, who, finding resistance vain, yields himself to necessity, and becomes the slave of man. These horses, though not very fleet, have amazing powers of endurance. In this their state of sudden bondage, they are sometimes ridden sixty, seventy, nay, a hundred miles, urged on at speed by the spur of their barbarous rider. When the dreadful task is done, mangled, terrified, and fainting from fatigue, they are turned loose on the plains to perish, or rejoin, as best they may, their lost companions.

These horses have reassumed, to a certain degree, the character of the wild type, as it is exemplified in the Horses of Tartary. The head has become larger, the ears more long, the limbs more muscular, and the general form less symmetrical than in the race from which they are descended. Their hair, however, has not become long and shaggy as in the Tartar horses, because they inhabit a soft and genial clime; but it has tended to that uniformity of colour which distinguishes the wild from the domestic races of all animals. Their colour is always of a chestnut-brown, and never dun, as in the Tartar races; and whenever a bay, a black, or other colour appears, it is inferred that the individual is of the domesticated race, and has made its escape and joined the wild herds. They are enduring, it has been said, but not very fleet, and are easily run down by the subjugated breeds.

The domesticated horses of these countries possessed by the Spanish Americans, possess the general characters of the race from which they are descended; but being treated with the utmost severity, and bred without attention to the choice of the parents, they have lost much of the grace of form and elegance of action which distinguish the true Andalusian. Stallions and mares are never ridden, and geldings only are used for the saddle. They are usually kept in extensive pasture-grounds, and driven periodically to the corral, when the lasso and the spur of the Guacho are employed to remind them of their dependence. When colts are to be broken in, they are driven in a herd to the corral, subjected one by one to the discipline of the lasso, and by mere force and terror reduced to obedience.

From the conquerors of these noble provinces, the Horse has passed into the hands of the Indians of the interior, producing a great change in the habits, though but a slight one in the moral feelings, of the red man of the plains. These brave tribes, who have escaped the bondage of so many of their fellows, may be said to pass their lives on horseback: their very limbs have become feeble from disuse of walking; but they are the most perfect horsemen in the world. Naked as when they were born, without a saddle, with a bit of hide, their long light lances in hand, they are ever in motion, migrating from place to place as the pasture around them is consumed. They have no tents, not even a covering for the head; they have no bread, no cultivated vegetables, no fruits, no salt. Their only food is the flesh of their mares, which they never ride, or the produce of the chase, which is not plentiful. Their whole thoughts and the pleasure of their lives are riding and war. "Their system of warfare," says HEAD, "is more noble, unencumbered, and perfect in its nature, than that of any nation in the world. When they assemble, either to attack their enemies, or to invade the country of the Christians, with whom they are now at war, they collect large troops of horses and mares, and then uttering the wild shriek of war, they start at a gallop. As soon as the horses they ride on are tired, they vault upon the bare backs of fresh ones, keeping their best until they positively see their enemies. The whole country affords pasture to their horses, and whenever they choose to stop, they have only to kill some mares. The ground is the bed on which from their infancy they have always slept; the flesh of their mares is the food on which they have ever been accustomed to subsist." These wild people have not yet acquired fire-arms, which might render them the most formidable of cavalry; but they have learned the use of intoxicating liquors, which they obtain by barter from the towns. They have some rude ideas of a future state, believing that, when they die, they will be transferred to a paradise where they will be always drunk, and always on horseback. As they gallop over the plains at night, we are told, they will point with their long spears to constellations in the heavens, which they say are the figures of their ancestors, who, riding in the firmament, are mounted upon horses swifter than the wind, and hunting ostriches. When they bury their dead, they kill several of their best horses, believing that their departed friends would otherwise have nothing to ride.*

The Horse is domesticated throughout all the settled parts of South America, but is nowhere treated with the care which is required to produce the full development of his form and useful properties. If he is inferior in many qualities to the races from which he is sprung, we may be assured that this is no result of the absence of the bounties of nature. These are all that can be

* HEAD'S Journey.

Drawn by Mr Nicholson R.S.A from a Painting by Mr Shiels, R.S.A.

Drawn on Stone & Printed by Haviland

THE RACE HORSE.

Stallion, Vestris, 11 Years old, the Property of Mr Hutchins of Cregane Castle, by Whalebone, out of Verennes, dam of Albert.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published December 1840, by Longman Brown Green & Longmans, Paternoster Row London.

WILD HOG.

PLATE I.

WILD BOAR and SOW, imported from Alentejo in Portugal, and presented to the EARL of LEICESTER by His Royal Highness the DUKE of SUSSEX.

The Wild Hog, *Sus aper*, is the inhabitant of the temperate and warmer parts of the Old Continent and its Islands. His colour varies with age, and in some cases with climate, but it is usually a dusky brown, with black spots and streaks. His skin is covered with coarse hairs or bristles, but with a soft wool intermixed, and with coarser and longer bristles upon the neck and spine, which he erects when in anger. He is a very bold and powerful creature, and becomes more fierce and indocile with age. He feeds on herbs, and delights in roots, which his nice sense of smell and touch enables him to find beneath the surface. He feeds, too, on animal substances, as worms and larvæ, which he finds under ground, on the eggs of birds, and on the young of animals, which he comes upon in his progress, and even on snakes, which, though venomous, he attacks with impunity. He eats, too, of carrion, but very rarely, and perhaps only when pressed by hunger. Like other hoofed animals, he is unfitted to capture animals that secure themselves by flight. He dwells in moist and shady places, which he quits in search of food when the shades of evening fall, and he employs the night in search of food, grubbing up the ground in long ridges. He is swift of foot, keeping pace for a time with a horse at speed. His common pace is a walk or trot, though, when urged, he passes into the gallop. He readily descends steep places, notwithstanding his bulky form. He bites with prodigious force, and inflicts desperate wounds with his sharp and crooked tusks. He quickly bleeds to death, so that he is not so tenacious of life as the Bear and some other animals.

The female carries her young for four months, or sixteen weeks. She produces a litter once in the year, and in much smaller numbers than when in the domestic state. She is rarely seen with the male but in the rutting season, which, in our latitudes, is in the months of December and January. She suckles her young for several months, and retains them for a yet longer time afterwards to protect them. When assailed, she defends her offspring with surprising courage, and the young reward her cares by a long attachment. She is often seen to be followed by several families, forming a troop formidable to their assailants, and destructive by their ravages to the vineyards and cultivated fields. When the young have acquired sufficient strength to protect themselves from their enemies, they generally assume the solitary habits of the race, and dwell apart in the recesses of the forest. The male is endowed with the singular instinct of seeking to destroy his own young at the birth, as if to prevent too great an increase of the numbers of his race. The female, conscious of the danger, seeks to conceal herself for a time after the young are born.

There is something noble in the courage of this powerful and solitary creature. All his strength seems to be given him for self-defence. He injures no one, unless when disturbed in his retreat, or in the search of the food which his nature leads him to seek. He does not court a combat with enemies that thirst for his blood, but for the most seeks to secure himself by betaking himself to the nearest covert. If attacked by savage dogs, he sullenly retreats, turning often upon them, and driving them back by his formidable tusks. When wearied and tormented, and forced at length to fight for his life, he turns on his persecutors, and aims at vengeance. If struck by the spear or ball of his pursuers, he has been known to disregard all his other enemies, and single out his destroyer. When pursued by dogs, he rushes fiercely upon the foremost and strongest, maiming and killing numbers of the pack in an incredibly short time. In like manner, he dashes upon the foremost horseman, overthrowing the horse and rider in a moment.

The hunting of the Wild Hog has been from early times a sylvan sport, familiar to the people of Asia and Europe. The classic writers of Greece and Rome abound with allusions to the chase of this dangerous creature. HOMER, the magic of whose genius carries us back through thirty centuries to the homes and feelings of the rustic warriors of his country, refers to the grisly tenant of the woods in a multitude of passages that live in the memory of every scholar. Later writers inform us, that the practice was to hunt him with large dogs, to encounter him with spears or javelins, and sometimes, it would seem, to drive him into nets or pallisades, in the manner pursued in Europe until our own times. During the middle ages, we have numerous accounts of the hunting of the Wild Boar. In England, the rude Anglo-Saxons brought to their new country the fondness for this sport which they had acquired in their native forests; and our chroniclers and early writers describe the arms employed, which

WILD HOG.

seem to have been chiefly the boar-spear, and powerful dogs trained to the chase. The animals, however, became gradually thinned in numbers by the persecution to which they were subjected; and the Norman invaders endeavoured to protect them, by their numerous forest laws, against the encroachments of the people. A law of WILLIAM the First enacts, that any one found guilty of killing a Wild Boar shall have his eyes put out, and other savage enactments are on record for preserving this and other beasts of venery. The Wild Hogs continued for some centuries after the Norman conquest to linger in the woods of Scotland and England, and many places in both kingdoms retain names derived from reminiscences connected with their existence, and the heraldic devices of illustrious families record the valour used in their destruction. FITZSTEPHEN, who wrote in the latter part of the 12th century, in the reign of HENRY II., informs us, that Wild Boars abounded, together with Wolves, Wild Bulls, and other game, in the great forests surrounding London; and we learn from the Scottish writers their existence in the woods of Caledon. The precise period of their disappearance in Britain has not been determined. CHARLES I. endeavoured to restore the race in the New Forest, but all the animals he turned loose for this purpose, were destroyed during the civil wars.

But the forests of other countries of Europe, as of Russia, Poland, Germany, and Spain, yet contain the Wild Hog, along with his perpetual enemy the Wolf. He is killed by fire-arms, or destroyed by the ancient methods of the boar-spear, and pursuit of hounds. The Germans, in an especial degree, have retained their fondness for this exercise; but it is solely the occupation of the lords of the soil, whose rights of chase are guarded by rigorous laws. Sometimes the animals are butchered in great numbers together; they are driven into enclosed spaces in the woods, by surrounding their places of retreat, when, as they issue forth, terrified by shouts and clamour, they are killed by fire-arms and spears.

But the most animating accounts we possess of the modern hunting of the Wild Boar are from our countrymen in the East, where the gallantry and address of the youthful hunters console us for the shedding of the blood of animals so unoffending, and so brave in their own defence. The Hogs inhabit the thick jungles of the country, which men and horses cannot penetrate; but often they quit these impenetrable coverts, either driven by the periodical firing of the jungle-grass, or proceeding in search of food into the plantations of sugar-canes, and the fields of rice, or of rhur (a kind of legume, growing from four to six feet high), which are often of great extent, or into the patches of long grasses, several feet high, which are found in these countries of rich vegetation. In such cases the game is to be dislodged, which, in the cane plantations, is done by numerous natives with staves or poles, drums, and other instruments, marching in lines; and in other cases by the huntsmen themselves, on horseback, entering with their attendants the ground where the quarry is supposed to lodge. Elephants are likewise employed in this sport, in which Tigers may be dislodged from their retreats. The Hog, being forced from his cover, is followed by several horsemen with spears, which they use in the manner of javelins. They pursue the animal at speed as he makes his way to the nearest cover, darting their spears into his body as they come up to him. "Those horsemen," says Captain WILLIAMSON, "who are posted at the nearest corners, should gallop round to watch for the Hog passing on, and giving the halloo, should dash at him at full speed, spearing as they come up. Some Hogs, however, are aware of the scheme, having been hunted before: many may be seen with large scars, evidently the result of wounds received on former occasions; and such are extremely difficult to deal with. They will break the line repeatedly, ripping all they meet, and eventually creating such terror as effectually to discourage the beaters, who thence get into groups, and, though they continue their vociferation, act so timorously, as to render it expedient to withdraw them for the purpose of trying a fresh cover. It is very common to see ploughs at work at the very edge of the canes where the villagers are beating for Hogs; and, as the bullocks employed are extremely skittish and wild, it rarely happens but, on the Hog's debût, they take fright and run off with the plough, which is often broken to pieces. The ploughman, alarmed equally with his cattle, also takes to flight, as do all the peasants who may see the bristling animal galloping from his haunt." *

Mr JOHNSTON, in his Indian Field-sports, gives us spirited accounts of the danger and excitation of this kind of chase. "It is difficult," says he, "to imagine or express the anxiety a keen sportsman feels when sitting on his horse near a sugar-cane, hearing the beaters calling out burrah suer (a large Boar), and perhaps at the same instant hearing his grunt, and the crashing of the cane, as he dashes on before them through it, expecting every moment to see him come out. I have often been thus situated, and have trembled all over as if I were in a fit of ague, which did not arise from fear, but from extreme anxiety, which went off the moment the Hog made his appearance. When a Hog has proceeded to what is considered a sufficient distance from a cane, the nearest hunter should follow him at a good rate, and, when he is off about a quarter of a mile, should put his horse out at full speed, pressing him as much as possible, observing minutely his motions. If he slacken his pace suddenly, he is probably waiting for an opportunity of making a desperate charge at the horse, and if he be in wind, it would be hazardous to withstand his charge; but if the hunter is determined to push on and spear him, which is often necessary near a heavy cover, by understanding and ob-

* WILLIAMSON's Oriental Field-Sports.

serving his manœuvres, he will be prepared for the charge. If the country is open and clear, I think it is more prudent to draw in the horse, slackening his pace agreeably to the Hog's, keeping nearly at the same distance from him as before he showed signs of hostility. When he finds the horse does not come on as he expected, he will be induced to increase his speed again, and will soon be out of wind, and allow the hunter to ride up near him without preparing to charge. Now, however, the hunter should dash on at full speed, and as soon as he arrives within a proper distance he should deliver his spear, and having done so turn his horse instantly off to the left. If other gentlemen are following, the nearest to the first should keep immediately behind him, to take his place when he has delivered his spear."

The same writer describes another scene eminently characteristic of the desperate fierceness and strength of the animal. He was one, he informs us, of a party of eight gentlemen on a sporting excursion, near the city of Patna, on the banks of the Soane river. Returning one morning from shooting, they met with a very large Boar, in a rhur, which they did not fire at or molest, as several of the party were fond of hunting, and they had no spears with them. The next morning they all sallied forth in search of him, and just as they arrived at the spot where they saw him the day before, they discovered him at some distance trotting off towards a grass jungle on the banks of the river: they pressed their horses as fast as possible, and were nearly up with him, when he disappeared all at once: the horses were then nearly at their full speed, and four of them could not be pulled up in time to prevent their going into a deep branch of the river, the banks of which were at least fourteen or fifteen feet high: happily for them there was no water in it, or any thing but fine sand, and no person was hurt. One of the horses which was very vicious got loose, attacked the others, and obliged all the gentlemen to quit them and walk to their tents. A few days afterwards they went again early in the morning in pursuit of the same Hog, and found him farther off from the grass jungle in a rhur field, from which with much difficulty they drove him into a plain, where he stood at bay challenging the whole party, boldly charging every horse that came within fifty yards of him, grunting loudly as he advanced. "The horse I rode," says Mr JOHNSTON, "would not go near him, and when I was at a considerable distance off, he charged another horse with such ferocity, that mine reared and plunged in such a violent manner as to throw me off: two or three others were dismounted nearly at the same time; and although there were many horses present that had been long accustomed to the sport, not one of them would stand his charges; he fairly drove the whole party off the field, and gently trotted on to the grass jungle (foaming and grinding his tusks), through which it was impossible to follow or drive him."*

These anecdotes of the habits, the courage, and strength of this wild and solitary creature, are interesting as facts of natural history, and likewise physiologically, as showing the vast change which domestication produces on his character: and not more remarkable is the difference in the conditions of liberty and subjection in the case of this animal, than the readiness with which he yields up his natural instincts, and resigns himself to bondage. If the wild pigs be taken young from their mothers in the woods, they become nearly as docile as the domesticated races, and in a single generation all the fierceness which distinguished the parents is lost. Their very form becomes changed, and those characters which fit them for a state of liberty disappear, as if in obedience to some natural law.

When the Wild Hog is subjected to domestication, these changes, amongst others, take place: The ears, not being required to collect distant sounds, become less moveable. The formidable tusks of the male, no longer needed for self-defence, diminish: the muscles of the neck, not being exercised in the same degree as in the natural state, become less developed, and the head becomes more prone: the back and loins become more long, the body more capacious, and the limbs shorter and less muscular: and anatomy shows that the stomach and intestinal canal have become extended. With the enlargement of the trunk, the animals become less suited for active motion, and along with the form of their bodies their habits and instincts change. They become more insatiate of food, and the tendency to obesity increases. They become diurnal in their habits, and so do not choose the night for their search of food. The male no longer seeks to dwell secluded from his fellows, and the female brings forth her young more frequently, and in greater numbers. With the diminished strength and power of active motion, the desire of liberty leaves them: they become content to grovel in the sty, and to return to it after a few hours of freedom. The creature that would have rushed on the armed horseman, and laid prostrate the fiercest dogs, now flees from the swineherd's cur, and yields obedience to the voice of a child. Nay more, they communicate their change of form, appetites, and habits, to their progeny: a new race of creatures, in truth, is formed, suited to a new condition; nor is it certain that it ever reverts to its former state. At least, when the domestication has continued for a long time, as in the case of the common Swine of Europe, the tendency to revert to the ancient type proceeds with a degree of slowness which is imperceptible. Many of the Swine of South America carried thither by the Spaniards have escaped into the woods, but they have not become Wild Boars, but remain in herds. In the woods of Sweden and

* JOHNSTON's Indian Field-Sports.

WILD HOG.

Norway, where they are allowed to roam at large, they are troublesome, and even dangerous to be met with, but they remain together, and are easy to be distinguished from the parent race. In the North Highlands of Scotland the pigs are left almost in the state of nature, being suffered to graze on the hills like sheep, and to search undisturbed for their food; yet these creatures, although they acquire a certain wild and grisly aspect, never reassume the true characters of the Wild Hog. They remain gregarious, the male continuing with the herd, and never betaking himself to his solitary lair: they are somewhat more wild and agile than the breeds of the lower country, but they never regain the swiftness, the strength, and the courage of the parent stock.

Of the causes which produce this adaptation of an animal to a new condition, physiology does not afford an explanation; but there is one circumstance to which we may reasonably ascribe the most obvious of the changes which take place in the animal,—this is the difference in the nature and supplies of aliment.

When the Hog is brought from the wild to the domestic state, food is supplied to him in larger quantity than he is enabled to procure in his natural condition. This produces an enlargement of certain parts of the body; but the increase of size in one part of the body necessarily implies a corresponding modification in others. Thus, when the supplies of food are increased, the size of the stomach and intestinal canal, and consequently of the abdominal cavity, becomes extended, and this is indicated by a prolongation of the back, and enlargement of the capacity of the trunk. To support this increased volume, the limbs are placed at a greater lateral distance from one another. The tendency to secretion of fat increases in a greater proportion than the tendency to the production of muscle and bone. With these changes the animal becomes less fit for active motion, and the exercise of his powers of self-defence; and not only do those changes take place in the individual, but he communicates them to his progeny, and thus a form acquired becomes permanent by transmission in the race.

And it is not in the Hog alone that we find a change of form and habits the result of changes in the quantity and nature of the food supplied. The like law extends to other quadrupeds, though producing the effect in different modes and degrees. Amongst ruminating animals, the Ox and the Sheep are subject to changes of form and character dependent upon the kind and abundance of aliment. With increased supplies of food the abdominal viscera become enlarged, and other parts partake of corresponding modification of form. The trunk becomes larger in all its dimensions, the limbs shorter and further apart, and the body being nearer the ground, the neck becomes more short; various muscles, from disuse, diminish in size, and the tendency to obesity increases. With the form of the animals, their power of active motion and strength diminish, and they acquire habits adapted to their changed condition. These new characters they communicate to their progeny, and thus races differing from those which in the state of nature would exist, are produced.

Some of the carnivorous species could furnish us with examples equally striking as the herbivorous. And if we turn from quadrupeds to the feathered tribes, we shall find indubitable proofs of the power of a change of food to alter the form, and with it the whole habits of animals. The Domestic Goose is derived from the Wild of the same species, which inhabits the boundless marshes of northern latitudes. This noble bird visits us on the approach of the arctic winter, in those remarkable troops which all of us have beheld, cleaving the air like a wedge, often at a vast height, and sometimes recognised only by their shrill voices amongst the clouds. When the eggs of the wild species are obtained, and the young are supplied with food in unlimited quantity, the result is remarkable. The intestines, and with them the abdomen, become so much enlarged, that the animal nearly loses the power of flight, and the powerful muscles that enabled him, when in the wild state, to take such vast flights, become feeble from disuse, and his long wings are rendered unserviceable. The beautiful bird that outstripped the flight of the eagle, is now a captive without a chain. A child will guide him to his resting place with a wand, and he is unable to raise himself by flight above the walls of the yard that confines him. He gives birth to a race of creatures as helpless and removed from the natural condition as he himself had become.

The Wild Duck, too, affords us a similar example. This wary bird arrives in flocks from the vast morasses of the colder countries. Many pairs remain behind in the swamps, pools, and sedgy rivers of lower latitudes; but the greater number retrace their flight to the boundless regions, where they themselves have been hatched, and where they can rear their young in safety. If the eggs of this bird be taken, and the young be supplied with food in the manner usual in the domestic state, the animals will have changed the form, instincts, and habits of their race. Like the Goose, they lose the power of flight by the increased size of their abdomen, and the diminished power of their pectoral muscles; and other parts of their body are altered to suit this conformation. All their habits change; they lose the caution and sense of danger which in their native state they possessed. The male no longer retires with a single female to breed, but becomes polygamous, and his progeny lose the power and the will to regain the freedom of their race.

Nor are the changes which thus occur in the form and characters of animals, from alteration in the conditions in which they are placed, of a slight or superficial kind. They are often as great in degree as those which are employed to distinguish species; and

if we are to apply the term species to indicate differences of form alone, we might say that the Domesticated Hog was *specifically* distinct from the Wild one. The number of teeth is regarded as the most constant of characters in the discrimination of species, and Naturalists are in the constant use of employing it in classification. But the character is in no degree constant, but varies with the external agents which affect the animals. In the wild state, the Hog has six incisor teeth in the upper and six in the lower jaw; but, under the effects of domestication, the number is reduced to three in each jaw, and this number is not constant. The vertebræ of the back vary from fourteen to fifteen in number, the lumbar from four or five to six, the sacral from four to six, the caudal from twenty-three to three or four, the tail being often rudimental in the domesticated races. In the Transactions of the Zoological Society for February 1837, Mr T. E. EYTON, amongst other osteological differences in different races of Hogs, points out the following as applicable to the number of vertebræ:

	English male.	African female.	Chinese male.	Wild Boar.	Domestic Hog.
Cervical	7	7	7	7	7
Dorsal	15	13	15	14	14
Lumbar	6	6	4	5	5
Sacral	6	5	4	4	4
Caudal	21	13	19	20	23
	55	44	49	50	53

Now all these races breed with one another as freely as those admitted to be of the same race, and the offspring of all of them are as fruitful as the parent stock. Mr EYTON naturally inquires, if we are to regard the African and the Chinese races as species distinct from the others? But these two races do not differ more from the common Wild Hog than the latter does from the Domesticated Hog. The safer inference is, that all these animals are specifically the same, under the common acceptation of the term species, and that the differences in their conformation are the result of the different conditions under which they are placed with relation to food, climate, and other agents. Naturalists may term them distinct species if they will, for the characters which distinguish species, as those which distinguish genera, classes, and orders, are but conventional. One writer may regard the Negro and the Papuan as of different species from the European, because they differ in the size and form of the cranium and nasal bones, the jaws, and so forth, and because the one possesses a glandular apparatus beneath the cuticle which is not at all, or imperfectly, developed in the other: and we cannot say that the holder of such an opinion is in error, under the view which he himself takes of the characters of species. When, therefore, questions arise regarding the specific distinctions of different races of Hogs, that which we can safely affirm is, that they are formed on the same plan, have similar habits, and that the differences between them are not more than are produced under our eyes by the effects of known agents.

The learned and ingenious BUFFON, in his history of the Hog, both in the reclaimed and wild state, describes it as being the rudest of all quadrupeds, and as forming, even in the conformation of its body, a kind of anomaly amongst brutes. The imperfections of its form, says he, seem to influence its dispositions; all its habits are gross, all its tastes unclean; all its sensations reduce themselves to a furious luxury and brutal gluttony, which makes it devour every thing that presents itself, even its own progeny. Its voracity seems to depend on the continual necessity it is under of filling the capacity of its large stomach, and the grossness of its appetites on the dulness of its senses of taste and touch. The roughness of the hair, the hardness of the skin, and thickness of the fat, render the animal little sensible to blows, and mice have been seen to lodge in its back, and eat its fat and skin, without its appearing to feel it. "Its body is as unshapely as its physiognomy is stupid: its neck is so thick and short, that its head almost touches its shoulders: its forelegs are so short, that it seems forced to lower its head in order to support itself upon its feet, and all its body seems as if it were about to fall forward. No ease appears in its motions; no suppleness in its limbs, which it scarcely bends in order to carry itself in advance. Even in its moments of greatest fury, it has always a dull and constrained attitude; it strikes, thrusts, and tears with its tusks, but always without agility and address, without the power of being able to raise its head, or to bend its body like other quadrupeds." These are the remarks of a writer whose eloquence never fails to charm, even when his arguments the least satisfy the judgment.

But the Hog, in its conformation, presents no anomaly, as our eloquent naturalist assumes, but is one of the links or reticulations by which all the forms of animated beings are connected. He is one of the pachydermatous or thick-skinned animals, of which the existing genera (exclusive of the Horse, which ought to be placed in a different tribe) are the Elephant, the Hippopotamus, the Rhinoceros, the Hyrax, the Tapir, the Hog. But while these types of many species alone remain, it appears that, in a former condition of this planet, ere Man himself was called into existence by his Creator, the Pachydermata were numerous, and formed a large proportion of the animated inhabitants of the earth. Their bones remain in vast numbers, but entire families of them

have altogether ceased to exist. From the form of their teeth, it appears that they were herbivorous, and those the most nearly allied to the Hogs, seem to have frequented vast rivers or fresh-water marshes. While these creatures inhabited the earth, the ruminating tribes, in which are comprehended the Sheep, the Ox, the Deer, were comparatively rare; but as countless periods rolled on, and the earth became suited for a new order of life, shall we say for the habitation of the last of created beings, Man, the number of the pachydermatous tribes diminished, and the ruminating, so essential to mankind, took their place. The huge Mastodons, Tapirs, and gigantic Hogs, or creatures resembling Hogs, though required to consume the abundant herbs of a then prolific earth, were not, we may infer, adapted to the present condition of the world and its inhabitants; therefore, we may believe they ceased to exist. Of these tribes, the few genera that have been enumerated alone remain, and the number and productiveness of each seem to be adjusted on the nicest balance to the order of things which an Omnipotent Providence has ordained. The Elephant, which once spread in countless herds to the Polar Circles, is now confined to the woods of the Tropics; the Rhinoceros, yet more rare, is limited to the hottest regions of India and Africa: the Hippopotamus, one of the hugest of living quadrupeds, is confined to the larger rivers of Africa, where he passes his harmless life under the waters; and the Tapir, a creature intermediate between the Pig and the Elephant, merely lingers in some of the forests of intertropical countries. But the Hog,—the contemned and misshapen glutton, the lowest of brutes, and an anomaly amongst his fellows,—survives the revolutions of thousands of ages, and is reproduced in countless multitudes in every region of the earth. Let us consider how far his form is imperfect, and how far he merits the obloquy which is cast upon the habitudes and instincts with which Nature has endowed him.

The Hog, we have seen, is chiefly herbivorous in his state of nature, or at least he does not prey upon animals that fly from him, and much of his food consists of the roots of plants, and the worms and larvæ which he finds under ground. To fit him for grubbing up this kind of food, the spinous processes of the vertebræ of the neck and back are of great size and strength, and immense muscles attached to them and the cranium, give a prodigious power to the neck, whose strength is further increased by its shortness and little flexibility. His fore limbs are short, and his face is prolonged, that, in digging, he may reach below the plane of the surface on which he stands; his face is wedge-shaped, that it may the better penetrate the ground, and terminates in a moveable disc of strong cartilage, furnished largely with nerves to give it sensibility. The eyes are small and sunk, that, when the animal rushes through thick coverts of brushwood, they may not be lacerated; and as a farther defence to the eyes in rushing through woods, the tusks of the male curve upwards before the orbits. The height and strength of his haunch and limbs, enable him to throw forward his body with vast force, and his tusks are so placed that he can inflict desperate wounds, by bringing them underneath his enemy and tearing or ripping him; and his strong jaws enable him to seize objects with such force, that the bite of no animal is more dangerous. So far is he from manifesting want of address in his modes of attack and defence, that both are precisely those in which he is enabled to employ his natural weapons with the surest effect. And with respect to his want of speed, it is seen that it suffices for the purposes of his own safety, enabling him to outstrip for a space the beasts of prey that are his assailants. When the Hog is described as a creature of gross habits and unclean tastes, as having the senses of touch and taste obtuse, and as being so insensible that mice may burrow in his fat without his seeming to feel, and so forth, we must see that this is not the description of an animal as he has been formed by nature, but as he is measured by some standard of our own. We cannot say that he is unclean, because Nature has furnished him with powerful organs of digestion, which enable him to derive nourishment from so many substances; and with respect to his voracity, what is this but the result of the extent and perfection of his digestive and respiratory organs? We cannot know what his sensations of taste are, but have no reason to conclude with M. Buffon that they are obtuse. The dulness of his sense of touch is inferred from the existence of the thick layer of fat which envelopes his body; but the plexus of nerves which give sensibility to the skin, is exterior to this fatty layer, and is not affected by it. The skin of the Hog is far from being insensible. He suffers under the irritation of gnats and other insects, and endeavours to protect himself from their persecution by rolling in moist places, and covering himself with mud. He feels blows acutely, and manifests his suffering by loud cries; and with respect to the burrowing of mice in his fat, this can scarcely but be a fable, though vouched for by Varro, and handed down as truth from writer to writer for 1800 years.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairland.

SIAMESE BREED.

Sow, 3 Years old, imported from Singapore by Messrs. Dudgale, Manchester: The litter by a half-bred Chinese Male.

Published June 1840, by Longman, Orme, Brown, Green, & Longmans, Paternoster Row, London.

SIAMESE BREED.

PLATE II.

SOW, Three Years Old, imported from Singapore by Messrs DUGDALE, Manchester: the Litter by a half-bred Chinese Male.

The south-eastern countries of Asia, comprehending the territories of the Birmans, the kingdoms of Cambodia, Siam, Cochin-China, Malacca, and others, are covered, it is known, with forests of magnificent growth, which are filled with numerous animals, amongst which the Hog abounds, along with other Pachydermata. In all these countries the Hog has been reduced to domestication, and over all the rich and populous empire of China proper, and the neighbouring islands and countries, it is largely cultivated for human food. The Hogs of these countries present certain characters which may distinguish them from those of Europe, but they have all the habits of our common Swine, and breed as freely with them as the latter do with one another; and it is only in accordance with analogy, that a species common to countries so distant and dissimilar as those of Eastern Asia and of Western Europe, should acquire each a set of characters dependent on the physical conditions in which it is placed.

The race supposed to be the most typical of the domestic Hogs of those countries has been termed the Siamese breed, from the kingdom of Siam, situated on the gulf of that name, nearly in the centre of the countries sometimes termed India beyond the Ganges. But the terms the Birman, the Cambodian, the Malacca breed, would be equally applicable; and, therefore, by the designation Siamese breed, must be understood not a race proper to Siam, but to a vast extent of country situated in this part of Asia.

The individuals are of small size, and have a cylindrical body, with the back somewhat hollow, and the belly trailing near the ground, in consequence of the shortness of the limbs. The bristles are soft, approaching to the characters of hair: the colour is usually black, the skin externally of a rich copper colour. The ears are short, small, and somewhat erect. They are less hardy and prolific than the native races of Europe, and the females do not yield the same quantity of milk; but they arrive very soon at maturity, they fatten on a small quantity of food, and their flesh is white and delicate.

The varieties of this widely extended race with which we are chiefly conversant in this country, are derived from China, being brought hither as sea stock, or otherwise, by the vessels employed in the trade which England has so long carried on with the Chinese empire. They have usually the dark colour characteristic of the race, but they are often also white, and of a size exceeding the medium; for in China there are varieties or breeds, just as in other countries. Some of them kept in the temples attain, in consequence of age and long fattening, to enormous magnitude; but it does not appear that these sacred pigs are any otherwise distinguished from the common breeds. The Chinese race with which we are chiefly familiar is derived from the neighbourhood of Canton. Those of the interior, or bordering on the Tartar countries, are little known to us.

It is well known that the Chinese feed more largely on pork than on any other kind of animal food. To this cause some have attributed the rejection by the Chinese of the Mohammedan faith. However this be, the flesh of the Hog appears to have been long the food of this singular people, and the animal itself is almost the only large quadruped which is cultivated by them for human subsistence. It is said that they also use the milk of the Sow; at least there is reason to believe that they supply with this substance the strangers who visit them. The English merchants and sailors who arrive at the port of Canton are thus unconsciously furnished with a substance, perfectly wholesome and nutritious it may be believed, but the use of which is revolting to the habits of Europeans.

The Chinese pay a minute care to the rearing and feeding of an animal so important to them as a means of subsistence: but the information of travellers is exceedingly scanty with respect to the really useful details of practice in this as in other branches of their rural economy. We learn, however, that, in the treatment of the animal, an extreme attention is paid to cleanliness and regular feeding. English traders who have resided in the suburbs of Canton describe the care of the Chinese, in this respect, as exceeding any thing that is practised in Europe. It is much to be regretted that we remain so ignorant of the few useful arts, in which we might hope to profit by the experience of this jealous people. Their knowledge of details, founded on experience and practice, is nearly all they have to communicate. Of principles, and any thing that can be termed science, they are as ignorant as barbarians: they can exhibit mechanical skill, and imitate what is placed before them; but in almost every thing that relates to the higher powers of inventive genius they are in the state of children. During their boasted dynasties of nume-

SIAMESE BREED.

rous centuries, the Chinese people have been the slaves of etiquette and form. They have formed an empire, but one in which the human mind has been doomed to stationary bondage.

The Hogs of China which have been introduced into England, are too delicate and sensible of cold to be of much economical value. The breed, therefore, is rarely maintained in its state of purity. It is chiefly by intermixture with the native races that its value is recognised, and it is in this respect that the introduction of the Chinese breed into England has been attended with beneficial results.

The fault of the old Swine of England was their coarseness of form, and their consequent inability to arrive at early maturity of muscle and fat. The mixture of the Asiatic blood has everywhere tended to correct this defect; though, at the same time, it has lessened the size of the native races, and perhaps their power to produce numerous young.

A question of economical importance is, how far it is expedient to continue the introduction of Asiatic Swine into England. It is conceived that this admixture has been carried to the full degree consistent with the interests of producers and consumers. We have now formed varieties superior to the Asiatic races in size, and equal to them in the power of fattening at an early age. We have merely to continue to breed from the best of the mixed progeny which we have obtained. In this manner, we can certainly, by the application of the common principles of selection of the breeding parents, procure pigs suited to the purposes required, equally removed from the too small size of the Asiatic kinds, and the too great coarseness of the indigenous breeds.

The flesh of these eastern Hogs is peculiarly tender and good, but it is suited for pork for the table rather than for bacon. The pure race communicates the quality of its pork to its mixed descendants; and it is this transmitted character, even more than the aptitude to fatten, which has induced so general an infusion of the Siamese blood into the races of this country.

Drawn by Mr Nicholson, R.S.A. from a Painting by Mr Shiels, R.S.A.

Drawn on Stone & Printed by Fearnand

OLD ENGLISH BREED.

Old English Sow, from the midland Counties.

OLD ENGLISH BREED.

PLATE III.

OLD ENGLISH SOW, from the Midland Counties.

The breeds of this country which may be regarded as native, may be divided into two general classes; first, those of smaller size, with the ears erect, or tending to erect; and, secondly, those of larger body, with the ears long and pendent. But between these extremes, there are such degrees, that numbers cannot be reduced to either class.

Of the smaller breeds, with sub-erect ears, the most marked are those of the Highlands and Islands of Scotland. These creatures are of very small size, usually of a dusky brown colour, having an arched back, with coarse bristles along the neck and spine. They approach to the aspect of the Wild Hog, without having acquired its habits. They are hardy in a remarkable degree, and adapted to find their food in the situations in which they are placed. They are left to forage for themselves, and have usually no shelter afforded them. They graze on the heathy hills and moors, grubbing up the roots of plants with their strong snouts, and feeding on the sea coasts on algæ, shell-fish, and the bodies of fishes which are cast on shore. In ranging over the hills, they destroy the eggs of plovers, grouse, and other birds, nay devour such new-born lambs as come in their way. They are the pest of the cultivated fields, rooting up the growing potatoes, and committing prodigious havoc in the corn-fields of their careless masters. They are generally very lean, and their flesh in this state is coarse and fibrous; but when confined and fed in a proper manner, they become fat more quickly than their grisly exterior would indicate. When their principal food is fish, their flesh acquires an oily disagreeable taste.

The next class of breeds consists of those having a large body and long pendent ears. These are the races of the lower country, which have been long in the domesticated state. They are of different colours, but are mostly white, or white spotted with black. They are slow feeders, require much food, and are late in arriving at maturity. When fattened at the age of two or three years, they become of enormous magnitude. Few, however, perfectly unmixed with foreign blood, now remain. Those that are to be found are merely scattered individuals, in remote districts, or in the hands of old farmers unwilling to change their modes of husbandry, or in the possession of persons who retain the females for the purpose of rearing large pigs. They are chiefly to be found in Ireland, and, until lately, were very numerous in that country. The cause of their disappearance is the mixture of blood with that of the more improved breeds. They have been in part likewise crossed with the Wild Hog, the effect of which has been to bring them nearer to the natural form, from which they had so greatly receded.

In the cases where the older race exists without intermixture, it presents the remarkable characters exhibited in the figure. Its form is uncouth; the bones are large, and the limbs long; the back is arched and narrow, the shoulder low, the face long, the ears are large and flapping. It presents, in truth, a combination of the characters which breeders now wish to avoid. Yet with all their defects, these animals possess an important property. The females produce large litters, and are the best of all nurses for their young. If crossed with the superior races, as with the Chinese or the Berkshire, the immediate progeny is always good, retaining the size of the dam, and acquiring the aptitude to fatten of the superior male. Thriftless, then, as these animals are in themselves, with relation to their power of fattening on a given supply of food, yet any one who possesses a Sow of this kind, will find her more valuable than any other for the purpose of rearing pigs.

In Yorkshire, Lincolnshire, Norfolk, and generally in the eastern counties, there are breeds of large size, of a white colour, and with pendent ears. These breeds have been cultivated with more or less care, and have all been affected in their form and characters by crossing. The county of Suffolk has been long noted for producing large quantities of pork, chiefly for the supply of the London market, and the white breed of Suffolk became early known for its goodness. This breed, however, has been crossed and recrossed by the Chinese, or descendants of the Chinese, so as to suit its size to the demand of the consumers. The Essex breed has, in like manner, been crossed with the smaller and finer breeds, so as to lessen its size and increase the delicacy of the pork; and the Essex Hogs are peculiarly distinguished by the fineness of the skin and softness of the hair.

The same system of crossing has been applied to all the former breeds of the country, the Northampton, the Shropshire, the Hampshire, the Rudgwick. The latter, so named from a village of that name on the borders of Surrey and Sussex, produced the largest Swine in England, and perhaps in the world. The Hampshire were also a very noted breed, from their being of large size, and well suited for bacon. But the distinctive characters of those various races have been more or less effaced, so that varieties

OLD ENGLISH BREED.

described by former observers cannot now be traced. In general, it may be said that all the breeds of this country have been tending to a smaller size and greater uniformity of character.

The races of larger Swine, with long bodies and pendent ears, are not peculiar to England, but extend to many parts of Europe. In Holland, Belgium, Germany, and France, are to be found breeds of similar characters, and equally removed from the natural standard. The Swine of Normandy are of the larger class, and very much resemble the older breeds of the southern and south-eastern counties of England. They are of a white colour, though this character varies with situation and treatment. The agriculturists of France, like those of England, have found the benefits of reducing the too great bulk of the larger races, and giving attention to the more essential properties of early maturity, and facility of fattening; but they have not carried to the same degree as the English the mixture of the races of eastern countries. In the south of France are to be seen very fine races of native Hogs, resembling those of Italy.

In Russia and the countries of the north of Europe, where the Wild Boar abounds, the domestic Swine have never deviated in the same degree from the parent type as in England and other countries which have been long cultivated. In those countries the Hogs are generally of a rufous-brown colour, of small size, and wild habits.

The early settlers of the Anglo-American States carried with them the Swine of the parent country, and some of their breeds still retain traces of the old English character. But the inhabitants of the United States derived great numbers of Hogs from Africa during the long prevalence of the trade in slaves, and latterly their vastly extended foreign commerce has enabled them to procure the best varieties of other countries. The Americans have paid much attention to the rearing of Swine, and there is no other people by whom this species of food is used in quantities so large. This fondness for the flesh of the Hog the Americans may be supposed to have derived from the early habits acquired in clearing their country of wood, when the Hog was the most serviceable of all the animals reared for the support of the settler.

Drawn by Mr Nicholson, R.S.A from a Painting by Mr Shiels, R.S.A

Drawn on Stone & Printed by Rowland.

BERKSHIRE BREED.

Pig, bred by Mr Loud, Mackstockmill, Warwickshire.

Published June 1840, by Longman, Orme, Brown, Green, & Longmans, Paternoster Row, London.

BERKSHIRE BREED.

PLATE IV.

PIG, bred by Mr LOUD, Mackstock-mill, Warwickshire.

Those varieties of the Swine of England which have received the name of Breeds, have been usually named from the counties or places where they have been reared in numbers. Thus we have the Hampshire, the Suffolk, the Berkshire, and other breeds, each supposed to be distinguished by a certain set of common characters. Of these breeds, one of the earliest improved was the Berkshire, so named from the county of that name; but the principal improvement of the breed was made in the counties farther north, chiefly in Leicestershire and Staffordshire. It still retained, however, its original designation, and the Berkshire has been long known as one of the most generally spread of the improved breeds of England.

The true Berkshires are of the larger races of Swine, though they fall short in size of some of the older breeds, as the Hampshire, the Rudgwick, and others. They are usually of a reddish-brown colour, with brown or black spots, a character which makes it appear that one of the means employed to improve them was a cross with the Wild Boar. The Berkshire has been long regarded as one of the superior breeds of England, combining size with a sufficient aptitude to fatten, and being fitted for pork and bacon. It has been regarded also as the hardiest of the more improved races.

The Berkshire breed has, like every other, been crossed and recrossed with the Chinese, or Chinese crosses, so as to lessen the size of the animals, and render them more suited to the demand which has arisen for small and delicate pork. Many of the modern breed are nearly black, indicating their approach to the Siamese character, and sometimes they are black broken with white, showing the effects of the cross with the white Chinese. From this intermixture, it becomes in many cases difficult to recognise, in the present race, the characters of the true Berkshire. The figure in the plate represents the old and characteristic form of the race. The great improver of the breed was RICHARD ASTLEY, Esq. of Oldstonehall, from the direct descendants of whose stock the present specimen has been derived.

Although no doubt can exist with respect to the great benefit that has arisen from diminishing the size and coarseness of the former Swine of England, yet, assuredly, there should be limits to this diminution of size in the Hog, as of every other animal cultivated for food. In many cases the diminution of size has been merely to suit the caprice of taste. The larger kinds of pigs do not find a ready sale in the markets of great cities, and hence the more essential property of an abundant production of butchers' meat is sacrificed. But we should remember that the supply of pork is of immense importance to the support of the inhabitants of this country. In the state of bacon it is largely consumed by the mass of the people, and in the salted state, it is used for the supplies of our numerous shipping. It is not, therefore, for the general good, that the old breeds of England should be merged in the smaller races of China and other countries.

While we should improve by every means the larger breeds that are left us, we should take care that we do not sacrifice them altogether. The country might one day regret that this over-refinement had been practised, and future improvers exert themselves in vain to recover those fine old breeds which had been abandoned. In place of unceasing crossing with the smaller races, it would be more praiseworthy and beneficial to apply to our larger races those principles of breeding which in the case of our other animals have succeeded. By mere selection of the parents, we could remove all the defective characters of the larger breeds, and give to them all the degree of fineness which consists with their bulk of body; for there is no animal so easily changed in form and moulded to our purposes as the Hog.

Amongst the kinds of crossing, that with the Wild Boar has been lately revived to some extent. The good effect of this cross is the improvement of the flesh, by mixing the fat more equally with the lean; for, in the Wild Boar, as in all the less cultivated races of the Domestic Animals, the fat is more mixed with the muscular parts. But otherwise the crossing with the wild race does not seem to be advisable. The form of the Wild Hog is not the perfect one at which the breeder should aim, and we have greatly better models presented to us in the best of the Domestic Breeds.

Hogs are from time to time brought by our innumerable shipping from the countries of the Mediterranean, as Italy, Turkey, Spain, and mingled with the Swine of the country. Of the Mediterranean breeds, the Maltese was at one time in favour. It was of small size, of black colour, nearly destitute of bristles, and capable of fattening quickly. At the present time a breed from the country near Naples has been introduced, and has been employed very extensively to cross the other breeds. This breed, like

BERKSHIRE BREED.

the Maltese, is of small size, and of a black colour. It is nearly destitute of hair or bristles, but, on being bred several times in this country, the bristles come. The flesh is exceedingly good, but the animals themselves are destitute of hardiness, and unsuited for general use. But they have been made to cross the other Swine of the country, and the progeny exhibit much fineness of form and aptitude to fatten. Their flesh, too, is delicate, on which account the Neapolitan crosses are at the present time in considerable favour in several parts of England. But there are other races of Italy which might, with greater benefit than that of Naples, have been introduced into this country. The best Hogs of Italy are supposed to be produced in the Duchy of Parma. They are of larger size than those of Naples, while they possess even greater aptitude to fatten, and yield pork equally white and delicate.

Hogs are sometimes introduced from Africa, and mingled with the other races. Those from the coasts of the Atlantic are termed Guinea Pigs: their descendants are of tolerable size and square form, and fatten with sufficient facility.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairland ... Sq.

NEAPOLITAN BREED.

Boar and Sow, the property of the Right Hon. Earl Spencer, imported from Naples by the Hon. Captain Spencer.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

LIST OF PAINTINGS,

FROM WHICH THE FIGURES IN THE PRESENT WORK ARE TAKEN.

The Original Paintings, contained in the Agricultural Museum of the University of Edinburgh, consist of a series of Portraits; those of the Sheep, Hog, and Goat, being of the size of life, and those of the Horse and Ox, of half the linear size. The Collection was begun in 1832, and though not yet completed, is now extensive. From this series it is proposed to make such a selection as will illustrate the more essential or remarkable Breeds of the country, giving descriptions in the letter-press of those of which it has not been thought necessary to present examples.

It is intended to complete the present work in thirteen parts or numbers, of which two will be devoted to the Horse, five to the Ox, five to the Sheep, one to the Hog, with a supplementary number, consisting of additional plates, and comprehending a descriptive memoir of the Goat. In the following List, the figures marked with asterisks have either been already published, or will appear in the subsequent numbers.

I. HORSES.

OLD ENGLISH BLACK HORSE.

*No. 1. STALLION, by Old Blacklegs, from a mare of the Dishley breed; bred by Mr Broomes at Ormiston, Derby. Old Blacklegs, living in 1834, and then 36 years old, was descended in a direct line from Bakewell's "Black Horse," the ancestor of many of the finest of the old dray-horses of London.

This race of heavy horses is reared extensively in the midland counties, from Lincolnshire to Staffordshire. The individuals are usually of great strength, but without corresponding action. The portrait exhibits the form of this class of horses as improved by Mr Bakewell of Dishley.

CLEVELAND BAY.

*No. 2. STALLION, by Catfos, the sire of Bay Chilton,—dam by Mr Agres' Rainbow; bred by Mr Robertson of Naperton, Holderness. This horse, the property of Captain Richardson, is 11 years old, is of a bright bay colour, and stands 15 hands and 2 inches.

The Cleveland Bays are a powerful and active race of horses, so named from the district of Cleveland in Yorkshire, where they were reared, but whence they have spread to all parts of Yorkshire and Durham. They are in demand for chariots and the lighter carriages.

SUFFOLK-PUNCH.

*No. 3. STALLION, rising 7, the property of Mr Denny, Egmoor, Norfolk, selected by him from the best that could be obtained of the pure Suffolk-Punch breed.

These form a compact race of horses, valued in the districts where they are reared, for their steady action in draught. They resemble the horses of Normandy.

CLYDESDALE BREED.

*No. 4. STALLION, 7 years old, the property of Mr Law, Morton, near Edinburgh.

ZETLAND PONY, the property of the Right Hon. the Earl of Hopetoun.

The Clydesdale breed of horses, deriving its name from the Vale of Clyde, in the county of Lanark, is now largely reared throughout the Lowlands of Scotland, although, from the effects of cultivation, they often differ considerably in their characters from the older breed of the district. Horses of this race possess good action, draw steadily, and are usually free from vice.

CONNAMARA HORSE.

*No. 5. GELDING, 13½ hands high, from the county of Galway; the property of Mr John Bindon Scott of Cahircon.

This pretty race of little horses, nearly unknown in England, is reared in the Connamara district of the county of Galway. They possess the characters of the Spanish Jennet, from which they are believed to be descended.

OLD IRISH HUNTER.

*No. 6. GELDING, 11 years old, the property of Mr Scully, Limerick,—bred by Mr Barny of Sandville. Of the old Merry Andrew line.

This remarkable race of powerful horses is now nearly extinct, the modern Irish Hunter, like that of England, having approached nearer to the character of the Race-Horse.

ENGLISH RACE-HORSE.

*No. 7. STALLION, Vestris, 11 years old, the property of Mr Hutchins of Cregane Castle,—by Whalebone, out of Varennes, dam of Albert. See Racing Calendar.

The English Race-Horse has been formed by an admixture of the blood of the lighter horses of warmer countries with that of the larger horses of England, and, by a long course of skilful improvement, has been brought to combine the properties of speed and strength in the highest degree. This beautiful race, being employed to cover those of inferior breeding, has essentially altered the characters of the saddle-horses of the British islands.

ARABIAN HORSE.

*No. 8. STALLION, of the Desert Breed, taken in a skirmish with an Arab Tribe, and imported into Britain by Sir John M'Neill, G.C.B., British Minister at the Court of Persia.

The Arabs are the most distinguished of all the horses of the East, have been carried to various countries, and have contributed in an important degree to form the characters of the English Race-Horse.

II. CATTLE.

SHORT HORNED BREED.

No. 9. BULL, Memnon, the property of Mr Murray, Legerwood, county of Berwick; bred by the late Mr Robertson of Ladykirk:—by Grey Diomed, dam by Albion, g. dam by Sirius; g. g. dam by Mr Charles Colling's Wellington; g. g. g. dam by Sultan, g. g. g. g. dam by Signior. Grey Diomed by Albion; dam by Diomed; g. dam by Sirius; g. g. dam by Mr Robert Colling's Midas; g. g. g. dam by Wellington; g. g. g. g. dam by old Sultan; g. g. g. g. g. dam by Sultan; g. g. g. g. g. g. dam by Punch; g. g. g. g. g. g. g. dam by Ladykirk.

*No. 10. BULL, Hecatomb, bred by the Right Hon. Earl Spencer; by Kirby; dam by Monarch; g. dam by St Albany; g. g. dam by Jupiter; g. g. g. dam by Sir Oliver; g. g. g. g. dam by Trunell; g. g. g. g. g. dam by Favourite; g. g. g. g. g. g. dam by Favourite; g. g. g. g. g. g. g. dam by Dalton Duke; g. g. g. g. g. g. g. g. dam (Old Favourite) by Mr Alcock's Bull; g. g. g. g. g. g. g. g. g. dam by Jacob Smith's Bull; g. g. g. g. g. g. g. g. g. g. dam by Jolly's Bull.

No. 11. BULL, Romulus, bred by Mr Smith, Shedlaw, county of Roxburgh.

No. 12. HEIFER, bred by Earl Spencer;—by William; d. by Childers; g. d. by Richard; g. g. d. by Jupiter; g. g. g. d. by Charles; g. g. g. g. d. by Windsor; g. g. g. g. g. d. by Chilton; g. g. g. g. g. g. d. by Colonel.

*No. 13. Cow, bred by Mr Hunt, Thornington, Northumberland; —by Reformer; dam by Raby; g. d. by Sir Oliver.

No. 14. OX, by one of the Ladykirk bulls, from a cow of the stock of Mr Smith, Grindon, bred by Mr Brack Boyd of Cherrytrees, Roxburghshire.

These are the variety of the short-horned breed, termed Durhams, brought to the highest perfection of form and fattening properties, by Messrs Charles and Robert Colling of the county of Durham.

LONG HORNED BREED.

*No. 15. BULL, 4 years old, bred by Mr Wyatt of Hanwell Castle, Oxfordshire; by a bull bred by Mr Smith of Sniddersfield, in the county of Warwick.

*No. 16. Cow, of the same breed, 7 years old, bred by Mr Wyatt; by Mr Princep's bull L.

No. 17. Cow, shewing a peculiarity of the Long-horned breed, namely, the accumulation of fat on the posterior parts.

The long-horned breed, once the prevailing one of a great part of the western and midland counties of England, afforded the basis on which Mr Bakewell founded the Dishley breed so long celebrated. The breed, although possessing valuable properties, has been long giving place to the Short-horned and Hereford.

HEREFORD BREED.

*No. 18. BULL, Selim, bred by the Right Hon. the Earl of Talbot, descended from the stock of Mr Tomkins.

No. 19. BULL, Woodcutter, bred by the Earl of Talbot; by Woodman, likewise descended from the stock of Mr Tomkins.

*No. 20. Cow, bred by the Earl of Talbot,—likewise of the best Hereford Blood.

The Hereford is a highly cultivated breed, greatly valued in the districts where it prevails for the fattening properties of the oxen and their usefulness for draught.

NORTH DEVON BREED.

*No. 21. BULL, aged 2 years and 9 months, bred by Mr Denny, Egmoor, county of Norfolk.

No. 22. Cow, aged 5 years, bred by the Right Hon. the Earl of Leicester.

NORTH DEVON BREED—*continued.*

No. 23. Ox, aged 2 years 7 months, bred by the Earl of Leicester.

The North Devon forms a beautiful and peculiar breed proper to the district, which extends from the Bristol Channel through the high lands of Devonshire, but extending with some change of character to South Devon and the adjoining districts. The oxen are valued for their fattening qualities and power of active labour.

SUSSEX BREED.

*No. 24. 2 Oxen, 6 years old, bred by Mr John Putland, Firle, Sussex, shown as in the yoke, and taken from the plough.

The Sussex is a variety of the Devon breed, but the individuals are of a larger size, and coarser form. As in the case of the Devon breed, the cows are deficient in their power of yielding milk.

POLLED SUFFOLK BREED.

No. 25. BULL, rising 4 years old, of the Red Polled variety, reared by Mr Richard England, Binham Abbey, Norfolk,—from the stock of Mr Reeve, Weighton, Norfolk.

*No. 26. Cow, 6 years old, from the same stock. Mr Reeve began his improvement of this breed about 50 years ago.

The Polled Suffolks, usually termed Suffolk-Duns, and Home-breds in the market of Smithfield, are a race of polled cattle of coarse form. They are hardy and good milkers, but have only in the hands of a few breeders been brought to much perfection of form.

SHEETED OXEN.

*No. 27.
- Cow, of the Polled variety, 4 years old, the property of Mr John Weir, West Camel, Somersetshire.
- Horned variety, 4 years old, from the stock of the late Sir John Phileps, Montacute House.

This breed has been found from time immemorial in the county of Somerset. It is distinguished by the contrast of brown and white colours, the white spreading over the body like a sheet. The cows are hardy, and suited to the dairy: the beef of the oxen is of good quality.

WEST HIGHLAND.

*No. 28.
- BULL, 4 years old, bred by Colonel M'Niel of Barra; by a bull termed the "Red Bull," bred by Mr Stewart, Chesthill.
- HEIFER, bred by Mr Campbell of Caolis; by a bull bred by Mr Campbell,

*No. 29.
- WEST HIGHLAND Cow, bred by Mr Maxwell, Aross, Mull; by a dun bull, bred by Mr Maxwell.
- YOUNG BULL, 18 months old, bred by Mr Campbell of Caolis; by a black bull, bred by Mr Campbell.

The West Highland breed affords the finest and largest of the cattle of the Highlands of Scotland. The breed was considerably improved by one of the Dukes of Argyle, and the portraits are of descendants of this variety.

PEMBROKE BREED.

*No. 30.
- BULL, 3 years old, bred by Mr Innes Ackland, of Boulston.
- Cow, 5 years old, bred by the same gentleman.

This breed is extended throughout all Pembrokeshire, and to the adjoining counties. The size of these cattle is nearly the same as that of the better class of West Highlanders.

GLAMORGAN BREED.

*No. 31.
- Cow, about 5 years old, bred by Mr Bradley, Treguff Place, near Cowbridge, in the county of Glamorgan.

MOUNTAIN Cow of the same age, and Bull, aged.

The improved Glamorgan is a valuable breed, of the larger size, of good form and fattening properties. The oxen are well adapted to labour; the cows are suited to the dairy.

II. CATTLE. (*Continued.*)

AYRSHIRE BREED.

*No. 32. Cow, 5 years old, the property of Mr Finlay, Lyonstone, Maybole, bred in the upper district of Ayrshire.

The Ayrshire Breed has been cultivated chiefly for the dairy; and great attention having been paid to the milking properties of the females, the breed of Ayrshire has become much valued on this account.

FIFE BREED.

*No. 33. Cow, 6 years old, the property of Mr B. Ferney of Kilmux, bred by Mr Anderson, Kinglassie.

The cattle of Fifeshire are usually of a mixed kind, but numbers of them present such distinct characters as to indicate a common origin. The best, and what may be regarded as the characteristic, breed of Fifeshire, presents an analogy to the Black Dairy-breed of Holland.

POLLED ANGUS BREED.

*No. 34. Bull, 4 years old, bred by Mr Watson of Keillor.

The Polled Angus breed is proper to the red sandstone district, which constitutes the plains and less elevated parts of Forfarshire. The fine example in the painting is from the stock of one of the most distinguished improvers of this breed.

GALLOWAY BREED.

*No. 35.
- Bull, 4 years old, bred by Mr Marshall, St Mary's Isle, Kirkcudbrightshire.
- Heifer, 3 years old, the property of the Countess of Selkirk, St Mary's Isle.

The breed of Galloway occupies a considerable tract of country in the south-west of Scotland. The cattle are much valued in the district where they are reared, and are largely exported to the markets of the south.

ZETLAND BREED.

*No. 36.
- Cow, 5 years old, from the island called the Mainland, the property of Mr Duncan of Coningsburgh.
- Bull, 3 years old, also from the Mainland.

This race differs in its characters from the common breed of the Highlands. The cattle are of good form, but small size. This pretty breed has been nearly destroyed by the effects of crossing.

ALDERNEY BREED.

*No. 37. Cow and Calf, the property of M. Brehaut of Jersey.

Of the breed termed Alderney, the best are produced in the Isle of Jersey. They are rather to be esteemed for the fine quality of their milk than its abundance. The same race extends to the other islands of the Channel, but those of Guernsey are of larger size.

KERRY BREED.

No. 38. Bull, 5 years old, the property of Mr Palliser Hickman of Fenlowe, County of Clare, selected in the mountain tract of the north of Kerry.

*No. 39. Cow, 6 years old, the property of the Right Honourable the Earl of Clare, from a stock selected by the late Bishop of Killaloe.

The Kerry forms a beautiful but neglected breed, derived from the mountainous country of the south-west of Ireland. The Cows are hardy, well suited to the dairy, and greatly valued on these accounts by the poorer tenantry and peasantry of the country.

POLLED IRISH BREED.

No. 40. Cow, aged, the property of Mrs M'Mahon of Stonehall, county of Clare.

The Polled Irish Breed was formerly much esteemed in Ireland, and is yet largely diffused chiefly in the vale of the Shannon. In size, this breed equals the Short-horned. The Cows are used for the dairy.

WILD OR WHITE FOREST BREED.

*No. 41. Bull, from Chillingham Park, the property of the Right Hon. the Earl of Tankerville.

*No. 42. Cow, from Haverford West, in the county of Pembroke.

The remains of the Wild or White Forest Breed are yet found in Wales in a state of domestication. In the memory of persons yet living, they were numerous in the county of Pembroke; but they are now generally merged in the common breed now reared in the county.

III. SHEEP.

ORKNEY BREED.

*No. 43.
1. Ram, 3 years old, of the ancient breed from the Isle of Enhallow.
2. Ewe, 3 years old, from the island of Rousay; bred by Mr Traill of Woodwick: The lamb a cross with the pure Cheviot.

These are examples of the ancient sheep of the Orkney Islands, which are of the race of short-tailed sheep of Northern Europe. It is a variety of the same race which extends to the Zetland and Faroe Islands. They bear a short soft wool mixed with hair.

WELSH BREED OF THE HIGHER MOUNTAINS.

*No. 44.
1. Ewe, from the high range of Glamorgan, north of Neath.
2. Ram, of the same race, in a state of improvement; bred by Lord Adare, Dunraven Castle, Glamorganshire.
3. Ewe, of the same descent, bred by Lord Adare.

This race of sheep inhabits the highest mountains of Wales, and is one of the wildest in the British islands.

SOFT-WOOLLED SHEEP OF WALES.

*No. 45.
1. Ewe, of the soft-woolled breed.
2. Old Radnor Ewe and Lamb.

The soft-woolled sheep are spread throughout the whole of Wales. Their mutton is excellent: the wool is soft but mixed with hair.

The old Radnor sheep are larger and better formed. The modern Radnors are the result of crosses with the Shropshire and other breeds.

No. 46.
1. Caernarvon Ewe and Lamb, from the high lands of Caernarvonshire.
2. Anglesea Ewe and Lamb, from the Island of Anglesea.

BREED OF THE WICKLOW MOUNTAINS.

*No. 47.
1. Ram, 3 years old, from the vale of Glenmalure.
2. Ewe, 3 years old, from the higher range of heathy mountains.

The sheep of this breed are of small size, but good form, and the mutton is much esteemed. They have a resemblance in their general characters to the sheep of Wales.

III. SHEEP. (*Continued.*)

KERRY BREED OF SHEEP.

*No. 48. Wethers of the pure native breed, the property of the Earl of Clare, Mount Shannon, county of Limerick.

This wild race of sheep is derived from the high lands of Kerry, but the other mountain races of the west of Ireland partake of the same general characters. They are of little economical value, but yield mutton of excellent flavour.

BLACK-FACED HEATH BREED.

*No. 49. Ram, 3 years old, bred by Mr Thomas Robertson, Broomlea, county of Peebles.

*No. 50. Ewe, 3 years old, bred by Mr Robertson.

The Black-faced Heath Sheep occur in the mountainous parts of Yorkshire, Cumberland, and Westmoreland, and have been multiplied throughout the range of hills stretching from St Abb's Head westward, and over all the Highlands of Scotland. They bear a coarse wool, of medium length, and are the hardiest of the mountain sheep of this island.

CHEVIOT BREED.

*No. 51. Ram, a one-shear sheep, bred by Mr Thomson, Attonburn, county of Roxburgh.

*No. 52. Ewe, bred also by Mr Thomson.

The Cheviot breed occupies the mountains round Cheviot, whence it has extended to other elevated districts. The sheep of this breed are somewhat less hardy than the Black-faced, but they arrive at greater weight, and bear fine wool.

DARTMOOR BREED.

No. 53.
- Ram, 19 months old, from the flock of Mr French, near Widdecome-on-the-moor.
- Ewe, three years old, the property of Mr Hicks, Widdecombe-on-the-moor.

EXMOOR BREED.

*No. 54.
- Ram, bred by Mr Westcott, Hawkhurst Common, Exmoor.
- Ewe, from the same flock.

The Dartmoor Sheep occupy the high lands of Devonshire; and the Exmoor a district of limited extent at the sources of the river Exe in Somersetshire. Both are wild and hardy races of sheep, and noted for the delicacy of their mutton.

SOUTH-DOWN BREED.

*No. 55. Ram, a four-shear sheep, bred by Mr John Ellman of Glynde, in the County of Sussex.

*No. 56. Ewe and Lamb, bred by Mr Thomas Ellman of Beddingham, from a Ewe bred by the late Mr Ellman of Glynde.

No. 57. Wethers, two-shear sheep, bred by Mr John Ellman.

The South-Down breed is proper to the chalky downs of the south-east of England, but has been widely spread to other districts. It forms a race of fine-woolled sheep of high estimation. A great proportion of the breed is now brought, by the care and skill of breeders, to the highest perfection of form and fattening properties.

OLD NORFOLK BREED.

No. 58. Ram, 3 years old, bred by Mr Graver of Creak, Norfolk, descended from the flock of Mr Turner of Creak.

*No. 59. Ewe, 3 years old, the property of Mr Brown of Norton, descended from the flock of Mr Turner.

In the same picture a Lamb crossed by the South-Down.

The Old Norfolk form an active race of mountain sheep occupying the high land of Norfolk, Suffolk, and Cambridgeshire. They produce admirable crosses with the more cultivated sheep, and hence the pure Old Norfolk is in danger of being lost as a separate variety.

OLD WILTSHIRE BREED.

*No. 60.
- Ram, bred by Mr Turner, near Hindon, Wiltshire.
- Ewe, from the same stock.

The Old Wiltshire occupied the greater part of the county of Wilts, but they are now nearly extinct as a separate variety. They were of a coarse defective form, but were the largest of the fine-woolled sheep of this country.

DORSET BREED.

*No. 61.
- Ram, rising 3 years old, bred by Mr Millar of Plush, near Dorchester.
- Ewe, rising 3 years old, from the same flock.

The Dorset, so named from the county of Dorset where they are reared, are valued for the prolificness of the Ewes, and their yielding Lamb at an early season.

PINK-NOSED SOMERSET BREED.

No. 62. Ram and Ewe, 18 months old; bred by Mr Thomas Sampson, Brympton, Somerset.

The Somerset breed is a variety of the Dorset, and possesses the same characters; but it is of larger size.

PORTLAND BREED.

No. 63. Ram and Ewe, bred by Mr Loman, Isle of Portland.

The sheep of this breed inhabit the Isle of Portland, where they have been kept unmixed for an unknown period. They are gentle, of small size, and good form. They are to be classed with the Dorset and Pink-nosed Somerset.

MERINO BREED.

*No. 64. Ram and Ewe, bred by Mr Benett of Pyt House, Wiltshire, M. P. Mr Benett's stock of Merinos, was derived from the Royal flocks of Spain, and has since been maintained pure.

The Spanish Merino breed was introduced into England in 1788, but has been only partially cultivated. The naturalized Merinos have become enlarged and improved in their form, and the staple of their wool has somewhat lengthened.

RYELAND BREED.

*No. 65. Ram and Ewe, from the stock of the late Mr Tomkins of Kingspion, now the property of Misses Tomkins.

This beautiful breed may be said to be nearly extinct in its pure state. The individuals are of small size, but finely formed, and early feeders. Their wool is the finest of any in England, and their mutton is excellent. The breed may be said to have merged in the numerous crosses that have been made with it.

PENISTON BREED.

No. 66
1. Ram, 5 years old, the property of Mr Kenworthy of Caslecotes.
2. Ewe, 4 years old, belonging to Mr Booth of Caslecotes.

This singular breed occupies an elevated district of the coal-formation on the confines of Yorkshire, Lancashire, and Derbyshire. It is termed the Peniston Breed from the market town of that name, lying to the south of Huddersfield in Yorkshire. The sheep are distinguished by their coarseness of form, especially of the extremities, and in a remarkable manner by their long and muscular tail. The rams are amongst the largest of this country.

DEVONSHIRE NOTT BREED.

No. 67. Ewe, 7 years old, the property of Mr John Bear of Chiverston, county of Devon.

The Devonshire Notts were a race of long-woolled sheep, proper to the lower parts of Devonshire. The original breed has nearly disappeared, but by crossing with the New Leicester a fine race of large sheep has been obtained.

III. SHEEP. (*Continued.*)

OLD LINCOLN BREED.

*No. 68. Ram, bred by Mr Jex, St Jermains, near Lynne county of Norfolk.

No. 69. Ewe, from the same flock.

No. 70. Figure of a Head of the Modern Lincoln crossed by the New Leicester.

The Old Lincoln sheep, noted beyond all the sheep of this country for the weight of their wool, are nearly extinct as a pure breed. The crosses constitute a class of heavy sheep.

ROMNEY MARSH BREED.

*No. 71. Ewe, in her second fleece; bred by Mr Bishop of Losenham-House, Kent.

The Romney-Marsh form a class of long-woolled sheep, kept on the rich pastures of the Marsh. They have been largely crossed by the new Leicester.

COTSWOLD BREED.

*No. 72. Ram, 9 years old, bred by Mr Joseph Hewer, Easlington, Gloucestershire.

No. 73. Ewe, 8 years old, bred by Mr Hewer.

The Cotswold sheep inhabit the low calcareous hills on the east part of Gloucestershire, but have extended to a considerable extent of adjacent country. The Cotswolds are a race of heavy sheep, prolific of lambs, and good nurses, and the lambs are early clothed with a thick fleece.

NEW LEICESTER BREED.

*No. 74. Ram, a two-shear sheep; bred by Mr Buckley, Normanton Hill, direct from the stock of Mr Bakewell: Wool 14 days grown.

No. 75. Ewe, bred by Mr Buckley, and likewise of the pure Dishley blood: Wool 30 days growth.

*No. 76. Wether, one-shear sheep; bred by Mr Stockes from the rams of Mr Buckley: Wool grown 44 days.

The New Leicester Sheep have been the most highly improved of the long-woolled sheep of Great Britain. The breed was formed by Robert Bakewell of Dishley.

IV. GOATS.

No. 77. Goats, from the high land dividing the counties of Brecon and Glamorgan.

These are the common breed of the flock-goats of Wales. The cultivation of the goat has now greatly diminished in Wales, and some of the finer varieties have become extinct.

V. HOGS.

*No. 78. Wild Boar and Sow, imported from Alentejo in Portugal, and presented to the Earl of Leicester by his Royal Highness the Duke of Sussex.

The Wild Boar, *Sus aper*, is the parent stock of the common domestic hog and its varieties. He is a bold and powerful creature in his state of freedom, but his progeny, when born in the domestic state, lose their native wildness, and become entirely subject to control.

SIAMESE BREED OF SWINE.

*No. 79. Sow, 3 years old, imported from Singapore by Messrs Dugdale, Manchester: The litter by a half-bred Chinese male.

The variety of the Eastern Hog best known in this country is derived from China, but the Chinese breeds are but varieties of one more generally extended, the Siamese. This race extends to Malacca and other countries of the East.

OLD ENGLISH BREED.

*No. 80. Old English Sow.

This is an example of the larger ancient Swine of England, distinguished by their great size, their lank form, and their pendent ears.

BERKSHIRE BREED.

*No. 81. Pig, 17 months old, bred by Mr Loud, Mackstockmill, Warwickshire.

The breed termed the Berkshire extends over the greater part of England. The great improver of this breed was Richard Astley of Oldstonehall, from the descendants of whose stock the present specimen is derived.

NEAPOLITAN BREED.

*No. 82. Boar and Sow. The boar, the property of Earl Spencer, was imported by the Honourable Captain Spencer from Naples; the sow, 2 years old, was bred by the Earl of Leicester from an imported stock.

This is one of the various breeds of the countries of the Mediterranean. The animals possess great aptitude to fatten, and produce good crosses with the native breeds.

No. 83. Sow, a cross between a Chinese female and Suffolk male, the property of the Most Noble the Marquis of Tweeddale.

This sow exhibits the high perfection of form so often possessed by the first crosses between animals of very distinct breeds.

FOREIGN SPECIES AND VARIETIES.

Although the essential purpose of this series of Paintings is the illustration of the Breeds of the British Islands, yet it has been conceived that examples of some of the more important races of other countries may be added, as further illustrating the effects of external circumstances in modifying the form and character of the Domestic Animals. Of these have been obtained :—

No. 84. Bos Indicus, *Linn.* Bull imported from India by the Zoological Society of London.

No. 85. Cow of the same race.

These fine animals, usually termed the Brahmin Bull and Cow, are selected by the priests on account of their beauty and size, and are held in veneration.

No. 86. Bison Americanus, the property of His Grace the Duke of Buccleuch, sent from Canada by the Right Honourable the Earl of Selkirk.

The Bisons of America are found in vast migratory herds in the woods and savannahs of North America. They are capable of domestication and may be used for the purposes of labour.

No. 87. Abyssinian Sheep, *Ovis aries*, var. *ecaudatus*. Ram and Ewe, presented to the Zoological Society of London, by Colonel Campbell, Her Majesty's Consul-General in Egypt.

This variety is distinguished by the great accumulation of fat about the tail.

No. 88.
1. Persian Sheep. Ram imported from India.

This variety in certain characters resembles the black-faced heath sheep of the British Islands. It is widely diffused over Central Asia.

2. Fox-coloured Demerara Sheep, a ram.
3. Cape Sheep, a ram.

The sheep of Southern Africa are usually distinguished by the large accumulation of fat on the tail. This character is likewise common to the sheep of Syria and other countries.

No. 89.
1. African Ram and Ewe, imported by His Grace the Duke of Sutherland, and presented to the Zoological Society of London.
2. Ram of Tunis.

THE RACE-HORSE.

various race-courses, computed to have gained to their owners L.201,505. From the celebrity of Herod and his stock, it is usual to call the descendants of the Byerly Turk the Herod line of horses, and this distinction is still recognised by English sportsmen.

In the latter years of QUEEN ANNE, an Arabian had been brought to England which tended to impress a new character on the English turf. This animal, the progenitor of some of the finest horses that have perhaps existed in the world, was purchased at Aleppo by a merchant, the brother of Mr DARLEY of Yorkshire. He was supposed to have been of the Desert breed, although his precise lineage was not determined. He got the Devonshire or Flying Childers, and another horse termed Bartlett's Childers, who was never trained, but who was the ancestor of Eclipse, one of the most remarkable horses of which we have any records.

The Devonshire or Flying Childers, born in 1715, was so named from his breeder Mr LEONARD CHILDERS, of Carr House, near Doncaster, from whom he was purchased, when young, by the DUKE of DEVONSHIRE. He was a chestnut-horse, with four white legs. He was of noble form, of matchless courage, and the fleetest horse that had ever been upon the English turf. He was at first trained as a hunter, but his surpassing speed being observed, he was transferred to the turf. About the year 1721, he ran a trial race with two of the finest horses of the day. Carrying 9 st. 2 lb., he ran over the Round Course of Newmarket, 3 miles 4 furlongs and 93 yards, in 6 minutes and 40 seconds; and over the Beacon Course, 4 m. 1 fur. 138 yards, in 7 minutes and 30 seconds.

Eclipse was got by Marske, a grandson of Bartlett's Childers, out of Spiletta. He was foaled in the year 1764, during the eclipse of that year; from which circumstance he took his name. He was bred by the DUKE of CUMBERLAND, and on the death of that Prince sold to Mr WILDMAN, a salesman at Smithfield; and afterwards he became the property of Mr O'KELLY. Eclipse had not the grandeur of form of the Flying Childers, and might have escaped notice, but for the accidental trial of his stupendous powers. He was about fifteen hands and one inch high. His shoulders were very low, oblique, and so thick above, that, according to the observation of the time, a firkin of butter might have rested upon them. He stood very high behind, a conformation suited to his great power of progression. He was so thick-winded as to be heard blowing at a considerable distance. In the language of honest JOHN LAWRENCE, "he puffed and blowed like an otter, and galloped as wide as a barn-door." No sooner were his powers exhibited on the turf, than every eye was set to scrutinize his form, and he was then admitted to possess in perfection the external characters indicative of great speed. A volume was written on his proportions by M. SAINTBEL, a veterinary surgeon, whose investigation showed that his figure differed greatly from the conventional form which speculative writers had assigned as the standard of perfection. He was of an indomitable temper, and his jockeys found it in vain to attempt to hold him, but contented themselves with remaining still on the saddle, while he swept along, his nose almost touching the ground. His full speed was not determined, since he never met with an opponent sufficiently fleet to put it to the proof. He not only was never beaten, but he was able to distance some of the best horses of his time; and the fleetest could not keep by his side for 50 yards together.

This remarkable horse first appeared on the turf at the age of five in 1769. In the first heat, he set off of his own accord, and easily gained the race, his rider pulling him in vain with all his force for the last mile. O'KELLY observing this, and aware of his horse's powers, offered in the second heat "to place the horses," and he took heavy bets that he did so. When called upon to declare, he said, "Eclipse first, and the rest no place." He gained his wagers: Eclipse was first, and all the others were distanced, or, in the language of the turf, had no place. From this time Eclipse was continually on the turf, and gained every race. No horse daring to contend with him, he closed his career of seventeen months by walking over the Newmarket Course for the King's Plate, in October 1770. During this brief period, it is said that he gained L.25,000 for his owner. He was then employed with prodigious profit as a stallion. He got 334 winners at our numerous race-courses, who are computed to have gained about L.160,000 to their owners, besides cups and plates. He died in 1789, at the age of twenty-five.

Eclipse, it will be seen, was directly descended from the Darley Arabian, and, besides, united in himself the best blood of the turf. It has been proposed to distinguish the line which he adorned as the Eclipse line of horses, just as that in which Herod is found has been designated the Herod line.

Another horse of foreign lineage, scarcely inferior to the Darley Arabian in the fame and value of his descendants, and by many supposed to have exercised a yet more important influence on the horses of the turf, is the Godolphin Barb, who lived a short time later than the Darley Arabian, having been born about the year 1724. This splendid horse was long regarded as an Arabian, although his characters approached to those of the Barb. He was found dragging a water-cart in France, and was probably one of those neglected presents of horses, frequent at that time, from the Barbary Powers to the French Court. He was brought to England, and finally presented to the Lord GODOLPHIN, in whose stud he remained a considerable time before his value was suspected; and then only it was discovered in consequence of the excellence of one of his sons, Lath, out of Roxana, who proved

THE RACE-HORSE.

PLATE II.

VESTRIS, Eleven Years Old, the Property of the late EMANUEL HUTCHINS, Esq. of Cregane Castle; by Whalebone, out of Varennes (sister to Quadrille and Fandango), by Selim: her Dam, Canary Bird, by Whiskey or Sorcerer, out of Canary, sister to Hippocampus, by Coriander.

The progressive steps have been referred to by which a race of Horses has been formed of recognised lineage, destined to a particular end, and possessed of a class of common characters. Although early importations of the lighter Horses of the countries of the Mediterranean had contributed to form the class termed Running Horses, it was not until the reign of JAMES I. that a race of Horses in the country was especially devoted to the Course. JAMES, while in his native country, had displayed a strong passion for field-sports and rude horse-races; and on his accession to the English Crown, he had the means afforded him of gratifying his tastes. He soon established regular Courses; and, before the expiration of his reign, a code of regulations was formed, which became the foundation of the refinements of the modern Turf. CHARLES I. was not less attached to horse-races than his father, but he brought greater taste and judgment to the pursuit; and he would have been one of the great improvers of the English Horse, but for those civil disturbances which deprived him of repose and life. Notwithstanding the bloody dissensions of this period, the passion for horse-racing gained ground amongst the people, whilst the ancient sports of the tilting-yard were partially continued. CROMWELL, with all the severity of his character, showed no distaste towards these pastimes. He had probably the sagacity to perceive the national advantages to be derived from improving the Breeds of Horses through the medium of popular sports. He cultivated his own stud with care, and did not disdain to exhibit his skill of four-in-hand. But it was to CHARLES II. that the final establishment of horse-racing, as a system and fashion of the opulent, is to be ascribed. It was a sport entirely suited to his own gay temper, while it was pursued with renewed eagerness by the people, tired of the fanatical severity of recent times. CHARLES sent abroad his Master of the Horse to make purchases for his stud. Two Barbs which he imported are familiarly known as the Royal Mares, and stand the first in rank amongst the parents of the turf-horses of England. He continued all his life to take extraordinary delight in this amusement. The place where he used to sit at Newmarket, surrounded by his joyous Court, can yet be pointed out as the King's Chair. JAMES II. partook of the same feeling, and attempted to pursue the same pleasures during his brief and agitated reign. KING WILLIAM did not disdain this sport of the nation, and paid great attention to the improvement of the Royal stud. QUEEN ANNE had a decided taste for the same pursuits, and kept a considerable number of race-horses. Amongst those which we read of in the racing annals of the time, are the now well known names of Pepper and Mustard, which seem to have been the most successful. The two first Sovereigns of the House of Hanover gave way to the public feeling: GEORGE III. was a judicious patron of the Turf: and GEORGE IV., long the gay leader of elegance and fashion, was strongly devoted to this class of spectacles.

The lighter horses for speed introduced previous to the reign of JAMES I. were Spaniards, Barbs, and Turks. But KING JAMES, on his accession to the English Crown, resolved to try the Arabian, with which his reading had probably rendered him familiar. He purchased a horse of that race, imported from the East by an English merchant, Mr MARKHAM, for which he paid the sum, great in those days, of L.500. This horse, however, in no way distinguished on the turf or for his stock, attracted little attention. The DUKE of NEWCASTLE, who afterwards wrote a remarkable work on Horses, took an especial dislike to this little Arabian, abused him as a bony creature, good for nothing, because, being trained to the course, he could not run. This opinion seems to have exercised a great influence on the breeders for the turf; and it was not until after the lapse of more than a hundred years that the neglected Arabian was again resorted to. During this long period, Barbs and Turks from the Levant were the horses chiefly imported, and mingled in blood with the pre-existing race.

Of the foreign horses early introduced into England, one, familiarly known as the White Turk, was the property of Mr PLACE, the stud-groom of the Lord Protector CROMWELL. Another was brought by the DUKE of BERWICK from the siege of Buda, in the reign of JAMES II.; and a third, the Byerly Turk, became the most distinguished of all the foreign horses of that period. He was the charger of Captain BYERLY in the wars of WILLIAM in Ireland, about the year 1689. Of the lineal descendants of this horse, one was King Herod, born in 1758, bred by his Royal Highness WILLIAM DUKE of CUMBERLAND, brother of GEORGE II. This fine horse, on retiring from the turf, was employed as a stallion, and got 497 winners at our

in 1745, and died in 1777, at the age of 32. When he first appeared for trial on the turf, nothing could exceed the ridicule of the jockeys at an attempt to run a coach-horse, as he was called. Sampson, however, turned out a racer of amazing power, and beat most of the horses of the day with which he entered into contest. The prevailing opinion of modern breeders is, that Sampson was really of pure blood, and that his peculiarity of form was an accidental variety.

The records of recognised authority with respect to the pedigree of Turf-horses, are the Stud-book and Racing Calendars. These works afford every detail required regarding the horses recognised as thorough-bred. It will be seen that, while the pedigree of the dam is carefully recorded, descents are reckoned by the male. The Arabs, it has been said, adopt a different practice, and reckon descents by the female. Either usage is founded on the assumption that the virtues of the parents are reproduced in the progeny. The English breeders adopt the most natural course, that of reckoning by the parent whose influence is the most extensive with regard to the numbers to which he communicates his qualities. The practices are not essentially different in the result; for a male possessing certain properties, derives them, on the assumption of the regularity of our law, from a male that has possessed the same virtues. The establishment of a true system of genealogy, it is apparent, must be founded on the derivation of both parents.

The Race-Horse, cultivated for a peculiar purpose, presents the conformation of parts which adapt him to the ends proposed. His height is from fifteen to sixteen hands. A medium, or even a smaller size, is preferred to one exceeding the usual standard. Few very tall racers have been remarkable for their performances on the turf, while many of the smaller size have proved themselves the most trustworthy and valuable. He is somewhat light in the body; and the limbs, with relation to the trunk, are somewhat longer than in the horses suited for the endurance of fatigue, or the exertion of physical force, as the Hunter, the Hackney, the Cart-Horse; in which respects the Race-Horse approaches nearer to the African than the Asiatic type. The chest is deep, but narrow—a conformation suited to the exertion of speed. The shoulder is finely formed, and oblique, but generally more low than consists with the safe and powerful action of the fore extremities. The back is somewhat long, and the distance between the last rib and the pelvis greater than in the hunter, in which strength and the power of endurance are more regarded. The croup is long, the breadth and length of the hind-quarters large, and the muscles well developed. In these latter points, connected in the first degree with the power of progression, the Race-Horse surpasses all other known breeds. The head is fine and moderately small, the forehead broad; the eyes are large and brilliant, the ears delicate, the lips thin, the nostrils wide, the subcutaneous veins apparent, the jaws distant. The neck is somewhat long, straight, and thin, and the windpipe appears distinct. The limbs are muscular to the knee and hock, and below these joints tendinous, thin, and flat. The pasterns are long and oblique, and the hoof is well formed. The whole conformation of the animal indicates lightness, activity, and the power of rapid motion. To these properties, indeed, others have been sacrificed, indicative of strength, safe action, and the power of endurance. A painter or a sculptor, were he to choose the model of a beautiful horse, would not select the thorough-bred Horse: he would prefer the Turk, with his nobler carriage, or the Hunter, with his broader chest, his shorter back, his more elevated crest and withers; but knowing the uses to which the Race-Horse is destined, we are reconciled to the peculiarities of his form, and even associate them with ideas of beauty and harmony of parts. The prevailing colour of the modern Race-Horse is bay, with black legs, mane, and tail. A rich chestnut, too, the colour of Eclipse, is not unfrequent. Black is rare, although good horses, chiefly those of the Trumpator blood, have been of this colour. Grey sometimes presents itself; but dun, roan, and piebald, are unusual.

As the conformation of the Race-Horse has become adapted to the exercise of a peculiar class of powers, so his treatment, food, and discipline, have relation to the same end. From an early period of his life he is placed in what may be termed an artificial condition, with respect to temperature, nourishment, and exercise. He is scarcely separated from the dam before he is clothed, placed in a hot stable, put on a diet of dry food, and exercised according to rules. He is brought upon the turf at the age of three years, or sooner. According to a modern practice unhappily introduced, he is frequently run at the age of two years, or even before he has arrived at the second year. This system is calculated to produce an injurious effect on this noble race of horses. It deprives the animals of that food which is best suited to the system in early life, substitutes artificial discipline for that natural exercise which the young and immature animal requires, and tasks his powers to the extreme, before his natural growth has been completed. It impairs by over-excitement the vigour of the system, produces a tendency to many maladies, and shortens the duration of life. Not only does it affect the individual, but it acts upon the progeny, causing feebleness and disease, and impairing the natural powers of the race.

The principle of the treatment of the modern Race-Horse, which is to be brought to a forced maturity of muscle and bone, is to keep him in what is termed condition, allowing him only a period of relaxation after the labour of the season. He receives dry and nourishing food, is kept in a high temperature by the heat of the stable and continued clothing, and is rarely exposed

to be the fleetest horse, Childers excepted, that had, till then, appeared on the English turf. His grandson Matchem was in a peculiar degree noted for the excellence of his stock. This latter horse is supposed to have yielded his owner, Mr FENWICK, upwards of L.17,000 as a stallion alone. He died in 1781, having had 354 sons and daughters, all winners at our numerous race-courses, and computed to have gained to their owners L.151,097. From the importance of the progeny of Matchem, it has been proposed to term the line to which he belongs, the Matchem line.

As the greater part of the horses of the modern turf are more or less allied in blood to Herod, Eclipse, and Matchem, it has been proposed to classify them by their lineal descent from these celebrated horses. This classification cannot be deemed satisfactory, from the mixture of blood that has taken place; but yet it is convenient, and may be found useful.*

The record of the pedigree of the horses of the English Turf exhibits distinctly the formation of a race of horses of exclusive lineage, or at least of a lineage interrupted only by the further infusion of the blood of those races of other countries from which its own characters have been derived. The record is of great interest and value, not only with respect to the matters of the Course, but as it relates to the physiological history of the Horse, and the principles of breeding. It proves, in a manner which no similar document has done, the constancy of the law by which the properties of conformation and character are transmitted from one animal to another, even to their remoter descendants. It shows beyond dispute, that the change produced on the properties and figure of the ancient horses of this country has been the result of the mixture of the blood of the horses of the warmer countries, and explains the meaning of the terms so often used, but so ill defined, of "blood," and "thorough-bred." For the most part, the horses of this privileged class have, since the more regular institution of the turf, been kept wonderfully free from intermixture with those of inferior breeding. Frauds have doubtless been committed, and horses introduced into the racing lists with false pedigrees; but, in general, an extreme vigilance has been exercised in this matter by those whose attention is constantly directed to the subject; and it may be safely said, that, for the last century and more, the instances of this kind have neither been numerous nor important in their results. It has rarely happened that the inferiority of the spurious breed has not been rendered manifest by deficiency in the speed and other properties of the individuals or their descendants; and though a few of doubtful origin may have been introduced into the Course, one of two effects has generally resulted: either the animals have been of themselves so good that no injury has resulted to the general race from the supposed taint, or they have been so inferior in character and value, that the blood has not been extended. In the last age, a very famous horse called Sampson, the property of the MARQUIS of ROCKINGHAM, was supposed to present such a deviation from the ordinary type of the Race-Horse, that a very general opinion long prevailed on the turf that he was of impure pedigree. He was a horse of immense size and strength, was born

* The following Table will suffice to give some idea of the mixture of blood that prevails in the modern Race-Horse. Thus, it will be observed, that though the sire and dam of Bay Middleton are both in the Herod line, they yet partake more or less of the blood of both the Matchem and Eclipse lines. In the same way Charles the Twelfth, though lineally descended from Eclipse, partakes of three successive infusions of the Herod blood; and Dr Syntax, though belonging to the Matchem line, inherits also the blood of both Herod and Eclipse. The same remark, indeed, applies even to Herod, Matchem, and Eclipse themselves; for, on referring to the Table, it will be seen that they all possessed more or less of the blood of one another. The Table will be readily understood when read thus: The Byerly Turk, and a mare descended through her sire from the D'Arcy Yellow Turk, produced Jigg: Jigg, and a mare descended through her sire from Curwen's Bay Barb, produced Partner; and so on.

BAY MIDDLETON.				CHARLES THE TWELFTH.				DOCTOR SYNTAX.			
Sire—SULTAN.		Dam—COBWEB.		Sire—VOLTAIRE.		Dam—WAGTAIL.		Sire—PAYNATOR.		Dam—BENINGBROUGH MARE.	
HORSE.	MARE descended through her Sire from	HORSE.	MARE descended through her Sire from	HORSE.	MARE descended through her Sire from	HORSE.	MARE descended through her Sire from	HORSE.	MARE descended through her Sire from	HORSE.	MARE descended through her Sire from
Byerly Turk	D'Arcy Yellow Turk	*Byerly Turk*	D'Arcy Yellow Turk	*Darley Arabian*	D'Arcy Yellow Turk	*Darley Arabian*	D'Arcy Yellow Turk	*Godolphin Barb*	St Victor's Barb	*Darley Arabian*	D'Arcy Yellow Turk
Jigg	Curwen's Bay Barb	Jigg	Curwen's Bay Barb	Bartlett's Childers	Lister Turk	Bartlett's Childers	Lister Turk	Cade	Partner, or Byerly Turk	Bartlett's Childers	Lister Turk
Partner	White D'Arcy Turk	Partner	White D'Arcy Turk	Squirt	Hutton's Bay Turk	Squirt	Hutton's Bay Turk	*Matchem*	Darley Arabian	Squirt	Hutton's Bay Turk
Tartar	Darley Arabian	Tartar	Darley Arabian	Marske	Godolphin Barb	Marske	Godolphin Barb	Conductor	Partner, or Byerly Turk	Marske	Godolphin Barb
Herod	Godolphin Barb	*Herod*	Godolphin Barb	*Eclipse*	Alcock's Arabian	*Eclipse*	Holderness Turk	Trumpator	Alcock's Arabian	*Eclipse*	Alcock's Arabian
Woodpecker	Matchem	Highflyer	Darley Arabian	King Fergus	Herod	Don Quixote	Herod	PAYNATOR		King Fergus	Herod
Buzzard	Eclipse	Sir Peter	Eclipse	Hambletonian	Herod	Sancho	Herod			Beningbrough	Godolphin Barb
Selim	Herod	Walton	Eclipse	Whitelock	Eclipse	Prime Minister	Eclipse			BENINGBROUGH MARE.	
SULTAN		Phantom	Matchem	Blacklock	Herod	WAGTAIL					
		COBWEB		VOLTAIRE							

THE RACE-HORSE.

Of the English race-courses, that of Newmarket is the first in rank and early celebrity. The town itself stands partly in Cambridgeshire and partly in Suffolk, 61 miles N.NE. from London, on the great road leading to Norwich. KING JAMES I. built a house here, that he might enjoy the recreation of the chase, and CHARLES II. added to and repaired it, after it had fallen into decay during the Civil Wars, frequently gracing it with his presence during the races on the adjoining Heath. The original palace of JAMES has long been sold and applied to other uses. The structure erected by CHARLES is chiefly used for training-stables. Mansions in and around the elegant little town are the memorials of success on the turf. Club-rooms, coffee-houses, billiard-tables, and circulating libraries, afford relief from the ennui of the intervals of business. The very air seems tainted with the spirit of the place; and, from the Three Tuns to the aristocratic rooms of the Jockey Club, all is redolent of betting and play. The very boys of the place, we are told, consume their winter evenings in cock-fighting and dog-matches, and at halfpenny roulette tables stake their all as freely as their betters. The racing-ground is reckoned the finest in England, from the variety of its surface, and the dryness, softness, and elasticity of the turf. It is in the vicinity of the town, is four miles in length, and is vested in the Jockey Club, as holding it under the DUKE of PORTLAND. The training-grounds, a mile and a half in length, are equally suited to their purpose. Four hundred horses are frequently to be seen in training during the greater part of the year; and the spectacle of so many fine creatures at their daily exercise on the heath is scarce inferior in curiosity and interest to that of the final exercise of their powers. The racing-ground is in eighteen divisions, termed Courses, of which the longest is the Beacon Course, 4 miles 1 furlong 138 yards: the next, the Round Course, 3 m. 4 f. 187 yds.: the last division of the Beacon Course is 3 m. 45 yds.: the middle portion of the same course 2 m. 97 yds.; and so on to the Yearling Course, 2 f. 147 yds. The variety of these courses, some on the rise, some on the descent, and some flat, afford means of selecting ground for matches suited to the age, strength, and qualities of the horses. The chair of the Judge is on wheels, moveable from place to place. The duty of the Judge is to declare the winner, which he does by the colour worn by the rider, which is handed to him before starting. He does not, as in other places, superintend the weighing of the jockeys, or take any cognizance of them in the race; and he rarely even sees the horses till they come upon the course. Betting-posts are placed at suitable places, to which the sportsmen resort after each race, to make their bets for the following one; and the process of offering, taking, and booking bets, is performed with a quickness, regularity, and decision, which cannot be surpassed. As only half an hour elapses between each race, the interest and excitement of the scene never flag. By the time of starting, the eager crowd that had surrounded the betting-post disperses, as if by a common impulse, some galloping to the starting-post, some placing themselves where the ultimate struggle of the horses is expected to take place, and some surrounding the Judge's chair, where they can soonest learn the momentous issue. All has an air of business, which no other course in the kingdom presents. No noisy crowds, as at the more popular meetings, fill the space, and distract the attention by clamour. Rarely the number of spectators exceeds 500 or 600, the majority of them on horseback, and deeply engaged in the business of the day. In the following morning all the bets are paid, when more than L.50,000 may change hands in an hour. The meetings at Newmarket are seven in the year:—first, the Craven Meeting, so named in compliment to LORD CRAVEN, commencing on Easter Monday; and then, at intervals of a fortnight, the First and Second Spring Meetings; then the July Meeting; then three in October, the last of which, termed the Houghton, is more numerously attended than any of the others.

Next in rank to Newmarket for its races is Epsom, situated about fifteen miles south-west from London, on the verge of the Banstead Downs. Upon the open space formerly stood an ale-house, called the Oaks, which was purchased by General BURGOYNE, and fitted up for a hunting seat. It was sold to the EARL of DERBY, one of the most perfect sportsmen of his day, who enlarged the mansion-house and beautified the domain. In 1779 he established the Oak Stakes, so named from his seat, and in the following year the Derby,—both of which have been run for ever since, forming the most popular races in the kingdom. The racing-ground is on the Downs. The new course, termed the Derby, is a mile and a half, somewhat in the form of a horse-shoe; the first three-quarters of a mile are nearly straight, the next quarter of a mile forms a gradual bend, corresponding with that of the shoe, and the last half mile is straight. The first part of the course, for about half a mile, is an ascent; the next third of a mile is level; the remainder is on the descent, until within the distance, when the ground rises again to the winning-post. The subdivision courses are, the new Two-year-old Course, T. Y. C., of six furlongs; the old T. Y. C., of somewhat less than four; and the Craven Course, one mile and a quarter. The Great Stand, erected in 1830, is capable of containing between seven and eight thousand persons, and various minor stands line the course to a distance, while innumerable temporary ones are erected during the period of the race. The first spring meeting, of minor interest, takes place in April; the great meeting, at which the Derby, the Oaks, the Craven, and other stakes are run for, commences on the Tuesday, and continues until the end of the week preceding Whitsuntide. The Derby is run for on Wednesday, the Oaks on Friday. The Derby stakes for a mile and a-half are fifty sovereigns each for three-year-old colts, carrying 8 st. 7 lb, and for fillies carrying 8 st. 2 lb. The Oaks offer the same conditions for fillies carrying

THE RACE-HORSE.

to the atmosphere uncovered. Under this system the fatty secretion is interrupted, the organs of respiration are kept in a state of constant activity, and the muscular fibre acquires that tenseness which fits the animal for the severest exercise of his physical powers. What the heat of the climate and the aridity of the soil produce in the case of the Horses of the Desert, artificial treatment effects in the case of the Race-Horses of England, though with violence to the general system. The first training or breaking in of these Horses is of the simplest kind, and has reference to nothing beyond the exercise of the animals' powers on the turf. None of that careful discipline and progressive instruction which are required in the case of the Saddle-Horse are needed for an animal which has never to exercise his speed but for a short distance, and on a level surface. In the case of these animals, we do not require to give an artificial carriage, for the purpose of rendering them docile and pleasant to the rider, but we seek to preserve their natural paces, and to call forth to the utmost the exertion of their muscular powers in running. No discipline is required by which the centre of gravity shall be thrown back, the horse brought upon its haunches, and a higher and safer action given to the fore extremities. It suffices that he clears the turf on which he is exercised; and the weight of his body is to be thrown forward, and not backward. He is therefore ridden by light boys, whose weight does not require him to bear on his posterior limbs, and who give him his daily exercise on a turf similar to that on which his powers are to be called forth. His walk is the long stride proper to the uninstructed colt; and the only other paces required of him are the natural canter and gallop. In these motions he is continually exercised; and if he answer the rein to the degree of allowing himself to be pulled up, and turned at the post, little more in the way of instruction is required of him. He is from time to time exercised in trials at running with his fellows, and thus acquires the habits of exertion suited to the race-course. This species of training, it will be seen, has relation only to a given end, and will be inapplicable to any other. The horses thus educated are frequently unsuited to useful purposes: they are so unsafe that they can scarcely be trusted to ride over a rough surface; and great numbers of them break down on the level turf on which they are exercised. Numbers of them are so little obedient to the rein, that even in the race they must be ridden with martingales, though, by this means, their necks and heads are placed in a position unfavourable to speed.

The more immediate training for the Course consists of a repetition and extension of the same system of treatment, with the addition of physic and forced perspiration. The horses being fed, are taken out early in the morning for several hours, and again for several hours in the afternoon. They are mounted in the stable by the boys, and one taking the lead, the others follow to the training-ground, which is usually in the immediate vicinity of the stables. The pace of the animals is gradually extended, until it becomes what is termed a brushing gallop. They are occasionally tried at speed with their fellows; and the period and degree of exercise are suited to the temperament and age of the animals, as determined by the judgment of the training-groom. The effect of this continued and severe discipline is to brace the muscular fibre, to maintain the strength and activity of the body, and to keep the respiratory organs in active play. To prevent the undue secretion of fat, purgative medicines are administered more frequently than in the case of any other class of horses; and the animals are occasionally subjected to a severe sweating, which is produced by clothing them thickly from head to tail, and galloping them for a shorter or longer space. When all the pores of the skin are opened by this exercise, the horses are taken to an adjoining house, and then scraped and rubbed till dry. These sweats are repeated once a-week, or thrice in the fortnight, according to the condition and constitution of the horse. The effect of the training is visible to the eye, in the distincter marking of the external muscles and tendons, the prominence of the subcutaneous bloodvessels, and the force, lightness, and celerity of the movements of the limbs and body. But a treatment thus artificial, carried to the degree required, must necessarily react upon the system, excite to excess the circulatory organs, enfeeble the powers of digestion, and induce many maladies. These horses, accordingly, arrive at premature age, are rarely long-lived, and are subject to numerous diseases of the limbs and viscera; and great numbers of them break down after their first exercises on the turf, or sink under the preliminary trials.

The practice of the Course itself merits consideration, not merely as a gay and exciting spectacle, affording relaxation and delight to great numbers of people, but as a system of games affecting public taste, national manners, and private morals,—as putting to the hazard of chances an enormous amount of capital,—and as being connected with the preservation of a beautiful race of horses, especially destined for the sport.

The number of established race-courses of the British Islands amounts at present to 153; namely, 132 in England, 9 in Wales, 9 in Scotland, and 3 in Ireland. The value of the stakes and prizes run for amounts to L.148,775,* forming, however, a mere fraction of the vast sums dependent on betting. The number of Royal Plates is 50, now commuted into payments of 100 guineas each, defrayed partly from the Privy Purse, partly from the department of the Master of the Horse, and partly from an annual Parliamentary grant.

* History of the Turf, by James Christie Whyte, Esq.

established for horses that are not thorough-bred. To this class of half-bred horses has been applied the absurd term Cocktails. The races for half-bred horses have now become very common at the different race-courses of the kingdom, with the exception of Newmarket, where their introduction has been always resisted. This kind of race has never been regarded with much favour by sportsmen. Objections to it are, the frauds to which it gives rise, and the disputes of which it is productive. It is very difficult to prove that a horse is thorough-bred if the owner chooses to conceal or falsify the pedigree. Hence thorough-bred horses may be fraudulently introduced into this class of races. The consequence is, that the prize is almost certainly carried away from the horses which alone are entitled to run. The fraud is difficult to be prevented, in consequence of the large amount of stakes of this kind established at the provincial meetings, which hold out a strong temptation to deception on the part of the lower class of persons connected with the turf. Some years ago a horse described as half-bred, under the fictitious name of Tom Paine, was hawked about the country, and won many valuable stakes. On investigation, it was found that this pretended Tom Paine was Tybalt, a thorough-bred horse by Thunderbolt, from a mare of LORD GROSVENOR'S, Meteora, one of the best in England of her day; and similar, though less impudent, frauds have in other cases taken place. Half-bred horses, too, are suited for different and more useful purposes than racing, and they are for the most part ruined by the severe training necessary to put them into a condition for running; and, when a number of half-bred horses contend together, it can scarcely happen that all will be put upon an equal footing with respect to training, so that, in this respect, a practical inequality is introduced, independent of the merits of the horses. It may seem that stakes limited to hunters which have been regularly hunted for the season are more free from objection. It is to be observed, however, that a hunter is destined for a particular class of services, for which mere speed is not the most important requisite; and it is cruel to put a hunter, after the hard services of the season, under the severe discipline necessary to fit him for running. Besides, many hunters are now thorough-bred, and this is a source of inequality, independent of the real value of the animals as adapted to the chase. For these reasons, it appears to many that this class of stakes ought to receive no encouragement on the regular turf; and further, that yeomanry races, farmers' races, and the like, should all be proscribed. No good with respect to the improvement of the breed of these kinds of horses can result from this class of races. A race-horse is intended to exert the powers of speed, and that is the best race-horse which most excels in this quality. But is this the property sought for in a hunter or in a road-horse? Or is a race on a level turf the fitting mean to prove that either is a good hunter or a good roadster? What should we think of a race of dray-horses?

Sometimes, though very rarely, half-bred horses are brought upon the regular course; but their inferiority is always balanced by a large discount in their favour of the weight borne. Arabs and other Eastern horses likewise have sometimes been run, but with scarce a chance of success against the thorough-bred horses of the country. Only one Eastern horse, it is believed, ever acquired any moderate reputation on the turf. A race was once established at Newmarket expressly for Arabs; but the experiment failed from the want of interest excited in consequence of the inferior speed of the horses as compared with those of native breeding. Even the first descendant between the native and Eastern race is usually inferior. By the regulations for the Goodwood Cup, the first descendants of Arabian, Turkish, or Persian horses, are allowed a discount of 18 lb. of weight, and when both parents are of these countries a discount of 36 lb. In other cases English race-horses have been tried against the horses of other countries. They are frequently carried to India, and matched against the best Arabs of the country; but the contests, it is believed, are almost always, under a parity of circumstances, in favour of the English racer, although the heat of the climate appears to be eminently unsuited to the exertion of his powers. Sometimes accounts reach us through the continental journals of the same kind of trials, with a different result; but we do not learn in how far the conditions of weight, training, and the like, were such as to put the horses on a fair equality. In the year 1825, a race was run in Russia between two English thorough-bred horses, Sharper and Mina, and three Cossack horses, the latter selected, after numerous trials, from the best that could be procured in the countries of the Don. The distance to be run exceeded forty-seven miles. On starting, the Cossacks took the lead, the English following about three or four lengths. They had not proceeded half a mile before the stirrup-leather of Sharper broke, and he ran off with his rider, followed by Mina. Before they could be brought up they had run more than a mile, and up a hill. The race, however, continued, and half the distance was run in an hour and four minutes. At that time both the English horses seemed fresh, and one of the Cossacks. Mina fell lame, and was withdrawn. The remaining Cossacks began to flag, and Sharper soon likewise showed symptoms of distress. The Russians and Cossacks, jealous of the honour of their country's horse, dragged him along by the bridle, threw away the saddle, and mounted a child upon his back, nay at length dragged him by a rope, and even endeavoured to support him by riding alongside of him. Sharper did the distance in two hours and forty-eight minutes, followed by the Cossack, who came in eight minutes later. In the accounts given of this extraordinary race, it is stated that the English horses carried at starting 3 st. more than their rivals, while during half the race it has been seen the Cossack was ridden by a mere child. If these accounts be correct, it is evident that the Cossack horses were immeasurably beaten even in that kind of race

THE RACE-HORSE.

8 st. 4 lb. These races excite intense interest, and the winning of the Oaks or Derby is an object of the first ambition to all connected with the English Turf.

These popular races present, it may be believed, an appearance very different from that of the quiet order and business-like arrangements of Newmarket. Here we are in contact with a vast city pouring forth its countless multitudes to enjoy a spectacle. The scene is unequalled in its kind in the world. All the approaches far around exhibit a moving mass of horsemen, carriages, and pedestrians, hurrying to the spot, while all the grounds which can command the course are filled with spectators. Nothing appears to the eye except the excitement and delight of eager crowds; but when we mark the start, on which the fortunes of hundreds hang, with half a million perhaps depending on the result, to be decided in a few brief, anxious minutes, then we feel that there is something in the drama to be played that must agitate many a heart. The whole spectacle is of deep curiosity and interest, and to be in any degree appreciated must be beheld.

The races of Ascot Heath, in the county of Berks, take place in the end of May, closely following those of Epsom, and they last for several days. These races were established by the DUKE of CUMBERLAND. They are largely attended by the more opulent classes of the Capital and neighbouring country. They last for several days, and deep betting takes place. The favour of the Court has been especially shown to these meetings, and, from the rank and wealth of their supporters, it is usual to regard them as more the races of aristocracy and fashion than any other in the kingdom.

The Goodwood races, so named from the noble mansion of the DUKE of RICHMOND, near Chichester in Sussex, although amongst the most recently established, are now the most popular in the south of England. From the fineness of the course, the excellence of the regulations, and the value and variety of the prizes, the best horses of Newmarket are brought to this course. The meeting takes place in the end of July, and lasts four days.

The races of York, instituted in the reign of QUEEN ANNE, and taking place in a district the most famous of any in England for the rearing of Horses, are well supported, and the money run for in Plates and Stakes is very large. The course is perfectly flat: the meetings are three in the year, namely, in April, August, and October.

But of all the meetings in the north of England, that of Doncaster has occupied the most prominent place, on account of the institution of the St Leger stakes, which had their origin in the year 1776. The commencement of this celebrated race was a sweepstakes of twenty-five guineas each for three-year-old colts carrying 8 st., and for fillies carrying 7 st. 12 lb. for a two-mile heat. There were six subscribers, and the stake was won by a bay filly by Sampson, belonging to the MARQUIS of ROCKINGHAM, who beat Colonel ST LEGER's bay filly and the other horses. In the following year it was suggested by Colonel ST LEGER that the sweepstakes should be continued annually on the same conditions; and the race was accordingly named the St Leger in compliment to the proposer of it. The original conditions were continued until the year 1832, when the stakes were altered to fifty sovereigns for each subscriber, with one-half forfeit; the weights being, for colts, 8 st. 6 lb., and for fillies 8 st. 3lb.; and the owner of the second horse receiving one hundred sovereigns out of the stakes. The Doncaster race-course is round, and nearly on a dead level. The Four-mile Course, so called, twice round is 3 m. 7 f. 219 yds.; the Cup Course is 2 m. 5 f.; the Two-mile Course is 2 m. 52 yds.; the St Leger, 1 m. 6 f. 132 yds.; the Fitzwilliam Course, 1 m. 4 f. 10 yds.; the Two-year-old Course, 7 f. 189 yds.; the Red-house is 5 f. 164 yds. These courses are adapted to the various stakes and matches, which are numerous at these races. The meetings are held annually in September, a fortnight previous to the first Newmarket meeting in October; on which occasion a vast concourse of individuals interested in the turf assemble from all parts of the kingdom, and heavy betting takes place.

In like manner, the other race-courses of the kingdom might be referred to, all of them exciting intense interest throughout large districts of country, collecting for a time great crowds as to a common centre of occupation and amusement, and involving the hazard of incredible sums of money. Those of Bath, Chester, Liverpool, Harwich, Manchester, Wolverhampton, are familiar by name to most persons in this country. That of the Curragh of Kildare in Ireland is situated at the little town of Kildare, on the great road leading from Dublin to Limerick. The ground on which the races are held is a noble undulating down, six miles in length by two in breadth, which, for all the requisites of running and training, is deemed superior to Newmarket itself. There are five meetings within the year at the Curragh, at which many fine horses run, where a large crowd of all kinds of persons collects, and where much dangerous betting takes place.

The horses, it has been seen, which are capable of engaging in these contests, are a peculiar variety, whose characters have been acquired by a mixture of the blood of the lighter horses of other countries with that of the pre-existing race, and then by continued breeding between the individuals of the mixed lineage. The variety thus formed has become a caste, whose comparative freedom from intermixture is ensured by its superiority for the purposes to which it is destined over the races of inferior breeding. But the latter, although they cannot engage on equal terms with the swifter breed, may do so with one another. Hence races have been

THE RACE-HORSE.

the jockey, which is conceived to distress the horse less than a stationary load. The jockey, with his appurtenances, is weighed before he starts, and again on coming in he must proceed mounted to the place of weighing. If he dismounts before, or wants weight, he is held to have been distanced, unless he has been disabled by an accident, in which case he may be led or carried to the scales.

The balancing of the horses' powers by their weights being a necessary element in the race and in the calculations of success, it is important to the person who bets to have a good knowledge of the characters of the horses, of their age, and of their powers, as shown by their running. But, besides the public manifestation of the horses' powers on the course, it is not unfrequent to make private trials of the horses which are to run, which enables their owners to speculate more securely on the ultimate result. It is not deemed expedient to prevent this system, but an endeavour is made to lessen as far as possible the hurtful effects which may result from it. One evil, scarcely to be guarded against, is the circulation of false reports of the trials, whereby horses which it is known beforehand will lose are rendered favourites for the great stakes. This has taken place in many cases to the deception of the public, and the injury of those to whom the reports were communicated. The watching of trials is strictly prohibited, at least by the Newmarket regulations; but watching notwithstanding takes place, and the result is communicated with the speed of a telegraph to the different clubs, and those who have the means to pay for the intelligence. But in this game of trick the watcher and his correspondents are often cheated in their turn. The training-grooms may make a horse win or lose as suits the purpose to be served; nay, the jockeys who ride may be as ignorant of the result as the horses themselves. The one jockey, we will suppose, has gained the race by a single length, or by half a dozen of lengths; but he knows not the load of shot that has been privately stuffed into his rival's saddle; and the latter, good man, is equally ignorant of the leaden spell that has been laid upon the powers of his horse. But the story which of all others has been the most frequently told upon this subject, and which best deserves to be repeated, relates to a famous match in the reign of GEORGE I. A horse, Merlin, was to run against another, the property of the well-known TREGONWELL FRAMPTON, then styled the Father of the Turf. The match excited intense interest among the sportsmen of the north in favour of Merlin, and among those of the south in favour of his rival. The horses had been for some time in training at Newmarket, when FRAMPTON's groom, with the knowledge of his master, endeavoured to induce the groom of Merlin to have a private trial with the weights and for the distances agreed upon, which he asserted could not fail to make both their fortunes. The groom in charge of Merlin had the honesty to communicate the proposal to Sir WILLIAM STRICKLAND, who took the charge of the match for Merlin. The Baronet coolly desired the groom to accept the offer, but at the same time privately instructed him to put 7 lb. more of weight into his saddle than were to be used at the match. FRAMPTON had previously given the very same orders to his groom, and the two horses started on their trial, each loaded with 7 lb. beyond the weight which he was to carry. In the trial Merlin beat his antagonist by a length. This being duly communicated by the grooms to their respective masters, each became certain of success. If my horse, argues the Baronet, can beat the other with 7 lb. extra weight, he is sure to win the race; if mine, says FRAMPTON, can come in within a length, loaded with his extra 7 lb., his success in the race is certain. The patriarch communicated the momentous secret to his friends, and enormous bets were offered and accepted on the result. At length the important hour arrived, and the betting was beyond all former example. The south country gentlemen, confident in the stratagem of their chief, declared that they would bet their gold while they had it, and then their land: the north country squires, equally assured of the success of their plot, took the bets to any amount. The horses started, the jockeys did their duty, and, just as was to be expected, the race was gained by Merlin by the same distance as in the secret trial. The confusion was immense; the secret came out; and the wily Father of the Turf found, as many are said to have since done, that his opponent was too far north for him. Numbers of gentlemen were ruined by this event; and soon afterwards a law was passed for preventing the recovery of gaming debts beyond the amount of L.10 Sterling,—a foolish law, seeking in vain to counteract the natural feelings of gentlemen, by relieving them of the obligation to pay their debts. FRAMPTON, the party implicated in this affair, deserves notice. He was born in the reign of CHARLES II., and had been keeper of the Running horses at Newmarket to KING WILLIAM III., QUEEN ANNE, and GEORGE I., as he continued to be to GEORGE II., in whose reign he died, at the age of eighty-six. He was a man of birth and fortune, esteemed by his private friends; but he had the misfortune to be regarded by the world as the greatest rogue of his age. One act of his is recorded, so full of meanness, avarice, and cruelty, as to be incredible. We will not repeat it, because we say that the evidence which has been produced in support of it is not worth a straw; because the victim of the tale has lain a hundred years and more in his grave without a tongue to defend him; and because, accordingly, every man who values for himself a good name after death is bound to pronounce a verdict of "not guilty" in favour of the unhappy FRAMPTON.

The means of judging of the success of rival horses on the turf unfortunately do not depend upon events which may be the subject of reasonable calculation, but on mere contingencies. A horse may be run to lose as well as to win, and other circumstances may affect the result, having as little relation to the powers and merits of the horses as events in the moon. But, before

Boston Medical Library

THE RACE-HORSE.

the most favourable for the trial of their peculiar powers. The accident to Sharper, and the distress occasioned him by running up a hill, were sufficient to have turned the day against him; but when to this is added the difference of weight, it is evident that the Cossack horses had not the remotest chance of success on equal terms. It would be interesting, however, to repeat this kind of trial, though for a less cruel distance, so as to determine in a satisfactory manner the relative powers of two races of horses both so excellent of their kind.

A class of Races introduced into this country has found favour among certain persons, but with little of reason to defend them. The Steeple-chase, or, as our ancestors termed it, the Wild-goose chase, is well calculated certainly to show the fearlessness of the rider, but scarcely his humanity and judgment. At any time, the high leap is a severe tax on the muscular powers of the horse; but when he is out of breath, and sinking under the exertion of severe riding, the forcing of him over an obstacle is injurious and cruel. The riding across a country is the regular exercise of a hunting field; but in the Steeple-chase, it is the wanton abuse of the powers of a generous creature intrusted to our humanity. It is not justified by any end of utility; any enjoyment beyond the barren applause for risking the safety of the rider and the life of his victim. We say, then, let those unhappy exhibitions of foolhardiness and cruelty be proscribed by public opinion, and abandoned by the youth of the country.

The Rules and Conditions of racing have been gradually reduced to a system, and recognised by common consent. The regulations of Newmarket have the highest authority, and are adhered to in their essential details at the other races. The race may consist of heats of one or more miles, in which the winner of the majority of heats becomes the victor; or of matches, consisting of a single race, by which the contest is at once determined. The system of heats is adopted in the case of royal and other public plates and prizes; the single race generally in the case of private and subscription matches or sweepstakes. But, as an addition to the weight carried makes an amazing difference to an animal moving at its utmost speed, the regulation of the weight is an essential element in the conditions of a race. When the animals are of the same sex and age, the weights should be the same, in order to show their relative powers; but, when animals of different age and sex contend together, they are put as nearly as possible in a state of equality by the difference of weight assigned to each. A larger weight is carried by stallions than by mares or geldings. The usual difference between a colt and filly of the same age is 3 or 4 lb., and the ordinary weight carried by a colt three years old is 8 st. 6 or 7 lb. The difference allowed for difference of age progressively diminishes as the animals become older, until it ceases. But, besides the differences of weight determined by age or sex, there are differences determined by convention. Thus parties having a match together, determine by agreement, founded on their real or supposed knowledge of the powers of the respective horses, the weight which each shall carry. This is usually termed a handicap match. Sometimes it is stipulated that horses which have gained stakes, as the Oaks or Derby, shall carry an additional weight; while, on the other hand, horses whose advantages of breeding or otherwise have been inferior, are allowed a discount of weight in their favour. The differences of weight which different classes of horses shall carry, in order that they may be placed in a certain degree of equality, are plainly not reducible to any fixed practical rule, much less to any mathematical theorem founded on the relative powers of the horses under different conditions. The whole adjustment is one of convention, based on the practical observation of sportsmen of the average powers of horses, as exhibited in different circumstances. When it is considered that an ounce of additional loading to the same horse may make the difference of a yard or more in half a mile of running, it will be seen how greatly the weight borne may affect the issue in the case of horses of equal powers. From mere experience, without any application of principles, it is surprising how well those practised in the business of the turf are able to calculate the effects of weight on the chances of success. In a match which took place many years ago at Newcastle-under-Line, the horses were handicapped, having their respective weights assigned to them by an umpire. Sir Thomas Stanley's Cedric, three years old, was to carry 6 st. 13 lb.; Mr Mytton's Handel, four years old, 7 st. 11 lb.; Sir William Wynne's Taragon, four years old, 8 st.; Sir John Egerton's Astbury, four years old, 8 st. 6 lb. For three successive heats Taragon and Handel came in nose to nose, reeling at the last, and scarce able to carry their riders to the scales. In the first heat Astbury was third, but so near were all the horses that his place could with difficulty be determined. Lying by, however, after the first heat, he came forward in a final one, and won.* In the first dead heat, it is apparent the weight of a few grains might have turned the scale.

By the former practice of the turf, the weights were heavy, and the courses long. Up to the commencement of the present century, the weights for plate horses were from 10 st. 4 lb. to 11 st. 6 lb., and the heats were of three or four miles. By modern practice, the length of heats is reduced to one or two miles, and the weight to about $8\frac{1}{2}$ stones. The weight does not include the shoes of the horse, which are therefore made of the lightest construction. The saddle usually weighs 3 or 4 lb., and sometimes it does not exceed 2 lb. When weight is to be carried, either the saddle is loaded with lead, or the weight is attached to the person of

* Mr Apperly, Quarterly Review.

refuses to limit their growing forms to the Lilliputian standard of 8 st.; and a few only accordingly attain the honours of jockeyship.

The Jockeys, again, form a class of higher importance and rank; the success of the race mainly depending on the skill, the coolness, and promptitude, with which they perform their part. The jockey must be of small size, to suit the light weight of the modern Turf, while he must possess the physical strength of limbs and body required for his dangerous exercise. His seat on the saddle differs from that of the ordinary horseman: he supports himself on his stirrups, and by the pressure of his thighs and knees, and throws the centre of gravity more forward than in ordinary riding, grasping each bridle-rein, and holding his hands low upon the withers. He rarely moves the position of his hands and body, or if he does, it is imperceptibly, so as not to interfere with the pace and stride of the horse. The instrument for urging forward the horse is the spur, used according to the emergency and the temper of the animal. The whip is held in the right hand, only to be used when necessary at the final set-to, or ultimate struggle, when the arms are raised, and the position of the body changed, so as to produce a temporary excitement in the horse. Not only does the jockey consider the temper and capacity of his own horse, but the speed and capability of his rivals, and a part of his nice game is to avail himself of the advantages presented to him by the deficient powers of the rival horses, or the faults of the riders. His eye is directed to all their movements; while to the observer he seems intent only on the part he has himself to perform. He seeks to gain the race, but with no more expenditure of his horse's powers than suffices for the end. If his own horse possesses superior speed, but less endurance, his game is not to urge his rival forward, but to wait until he reaches the distance at which he knows his own superior speed will bring him in. If, on the other hand, his horse has greater endurance, but inferior speed, he reverses the manœuvre; he presses his rival to his utmost powers, and trusts to the property which his horse possesses to carry him in first to the goal. But when the distance to be run is very short, the artifices must be modified in a corresponding degree. In this case, it is important to get the horse the soonest possible on his utmost stretch, so that space may not be gained by the rival. No rules, however, can be given to suit all the cases that may arise. There are jockeys so perfect in their art, that nearly every thing is trusted to their judgment; but there are numerous cases of others less skilful, as when boys must ride on account of the very light weight required, and then specific instructions are given by the training groom, founded on his knowledge of the horse, of the ground, and of the capacity of the rivals. There is always on the turf a certain number of jockeys of reputation, whose professional services are in continued request. These persons are frequently engaged to ride various races in a day, and are often required to make rapid and distant journeys from place to place.

To adapt the jockeys to the weights required, the process of wasting, as it is termed, is in use. The means used for wasting are, abstinence, walking exercise, sweating, and medicine; the degree in which each is used depending on the time allowed, and the temperament and condition of the patient. The dress is of stout soft flannel, and generally consists of from two to three pairs of drawers, and from four to six waistcoats and jackets, and over all a suit of loose common clothes. The jockey having taken some light food, starts early in the morning on his walk. He commences at a moderate pace, which he gradually increases; and having gone a distance of four miles or more, he has usually a room prepared, in which he can partake of some warm liquid. Having somewhat rested himself, he returns homeward at a smart pace, usually swinging his arms to increase the muscular action. Entering the house in a state of profuse perspiration, he takes some warm liquid, and reposes for an hour or more covered with blankets: when the perspiration has subsided, he places his feet in warm water, sponges his body, and dresses himself as usual, taking care that his clothing is sufficiently warm, and avoiding unnecessary exposure to cold and moisture. He retires to rest at an early hour, and rises betimes to renew his walk. Coincidently with this exercise, he observes a strict and abstemious diet: his common food is tea and plain toast, with a little animal food at noon. Distilled liquors are proscribed, and the only fermented one allowed is wine, and this in the smallest quantity, and largely diluted. Aperient medicines are sometimes used by those who dislike severe walking, but never with so good effect as the simple exercise. Under this system, a man can reduce his weight a pound or more in the day, without injury to his general health, or temporary impairment of his natural vigour. On the contrary, all jockeys admit that they receive benefit from the training process, and that it is only when they return suddenly to a system of repletion that inconvenience is experienced. When jockeys exceeding the required weight are in practice throughout the racing season, they must keep to this system of diet with extreme rigour. Relaxation even for a single day will increase the weight of the body many pounds. A single glass of brandy, by exciting the external absorbents, will undo the effects of several days' wasting. It will appear, then, that it requires no slight degree of self-control in the jockey to maintain, during a period of seven months of laborious exercises, a system of abstinence to which the fast of Ramaddan is a jest; and it is not to be wondered at that, when his long lent is over, he is too ready to welcome the season of good cheer. It was the practice of FRANK BUCKLE, on the last day of the Houghton Meeting, always to order a goose for supper; and where is the lover of good things who might not have envied FRANK BUCKLE his goose?

THE RACE-HORSE.

speaking of these things, it will be well to turn for a moment to the classes of persons who are engaged in this stupendous system of amusement and play.

The humblest class connected with the business of the turf consists of the Boys of the Stables, to each of whom is assigned the care of one horse, with the duty of riding it at exercise: of these poor youths the number is very great. They enter on their hard duties at a period of life so early, that the stable becomes to them a little world, which bounds their thoughts, and influences all their habits. One of their number has given us a whole book, under a title eminently characteristic of the stable, "Genius Genuine." Another, however, has really lived to distinguish himself as a man of letters, and has given us the singular story of a Stable-boy's Life. This is HOLCROFT, known in his age as a dramatic writer and novelist of no mean note.

The boys, he tells us, rise at half-past two in summer, and at between four and five in the depth of winter. When they begin to awaken one another for their morning task, the horses are on the watch, neigh, and express their joy and eagerness to be fed. Food being supplied, the litter is shaken, the stalls are made comfortable, and the animals dressed. They are mounted in the stable, and taken out to the downs and heaths for exercise, which lasts for several hours. On their return they are again dressed, and the boys permitted to break their fast; and nothing, our author tells us, can exceed the enjoyment of a stable-boy's breakfast. The duties of the stable are then resumed, and again the horses are taken to the training-grounds, and again subjected to their long exercise. These horses, hot in blood, tender from constant clothing and rubbing, are skittish, often vicious, easily and suddenly alarmed, irritable, and dangerous even in their play. The youthful horsemen acquire by degrees a firm seat, clinging to their fiery steeds by their knees and legs, and managing them with courage and address. Their seat has not the graceful ease of the manège, but accords with the practice found suitable for the Course. In the stable they acquire a wonderful command over the hot and dangerous creatures with which they are in contact, ordering them with authority, roughly rubbing their irritable skins and dangerous heels, a single stroke of which would terminate the joys and sorrows of the tiny groom. While often a man and a stranger durst no more enter the stall or loose box of one of these fiery creatures than the den of a tiger, these boys are to be seen as much at their ease as if they were playing with a cat; so strong is the power of reason, even in a child, over brute force and the wildest passions of inferior natures.

In a community of such lads, far away from the vigilance of early friends, associated with evil minds, and witnesses of gross pursuits, an extreme severity of discipline is called for. Woe it is to him, our author tells us, who is absent at stable hours; but how many are the minor offences which lie between this extreme and the mere thoughtlessness of boyhood, for which the harsh reproof, the ashen rod, the abrupt dismissal, are put in force! The want of sleep may seal the urchin's eyes even when he approaches the brushing gallop; how much more soundly is he likely to slumber upon the truss of straw in the warm stall! His dreams, however, may be interrupted by the ready broom, and more effective switch. "I remember to have been so punished once," says our author, describing his falling asleep in his horse's stall, "when the blow, I concluded, was given by Tom Watson, as I thought no other boy in the stable could have made so large a *wale:* it reached from the knee to the instep, and was of a finger's breadth." Here the chastisement may have been wholesome; but to the forlorn boy, the more cruel dismissal may bring destitution, sorrow, and crime. Mr HOLCROFT describes his own mental sufferings in a case of this kind with touching effect, the penalty of an unlucky tumble from a dark-grey filly, by which he nearly broke his neck. But for what further relates to our author's personal adventures, reference must be made to his own amusing memoirs, where we find detailed his first feelings of joy on partaking of a breakfast of cold meat, Gloucester cheese, and white bread; his exultation at finding himself, in place of driving a shoemaker's donkey through the dirt, mounted on an animal outstripping the wind; his fall from the dark-grey filly, and its results; and the final ruin of all his equestrian hopes, by his being found "idling away his time in reading;" by his scratching ciphers on the paling of the stable-yard with a nail; becoming actually able to spell a word of six syllables, to the surprise of his drunken schoolmaster; by his being found studying psalmody under the guidance of a journeyman leather-breeches maker; and finally, by his throwing away all his earnings, by betting, like his betters, on the stirring events of the heath. While these things may make us smile, they may furnish food for graver thoughts. Can nothing be done to benefit the condition of these youthful instruments of so many pleasures? Of all the vast sums which are squandered on licentious sports, can no mite be saved to gain some little food of the mind for these severely tasked boys, even to the degree of teaching them to spell words of six syllables? Can nothing be allotted for relief to them during the trying hours of destitution, when the failure of employment renders them helpless and heart-broken, even though their dismissal should have been merited, and for offences greater than falling from a dark-grey filly, or singing psalms with a leather-breeches maker? We do not think they would make the worse grooms if some substitutes were provided for skittles, cock-fighting, and halfpenny-roulette tables. The prospects of this class, it is believed, are sufficiently melancholy. They soon outgrow the light weight which is necessary for the habitual exercise of the Race-Horse. Their highest ambition is to become jockeys; but, in ninety-nine cases out of a hundred, Nature

and others of a former age; and of the SCOTTS, the DAYS, and the FLAXMANS, of the present one; but these examples will suffice to show the class of superior jockeys employed in the active duties of the Course.

The next class of persons connected with the turf are the Training-grooms. Numbers of opulent sportsmen have their own training-grounds. The public establishments of the kind are at Newmarket; at the towns of Epsom and Ascot; at Black Hamilton in Yorkshire, on the road from Thirsk to Helmsley; Langton Wolds, near the town of Malton, and separated from the race-course by the public road; Middleham Moors, also in the county of York; Whiteclift Moors, near the town of Richmond; and the Curragh of Kildare. The Heads of those establishments are called training-grooms. They are persons in whose fidelity, judgment, and knowledge of the business of the turf, great confidence must necessarily be reposed. The more immediate duties of the training-groom are the care of the horses with respect to health, and preparation for the turf; but with these duties are conjoined others, of counsel and aid, founded on the trainer's knowledge of the horses intrusted to him, and the general business of the turf. It is evident that, were a training-groom to be unfaithful, a given horse might neither be in the condition suited for running, nor, under other circumstances favourable to his owner's success.

But what are the other classes concerned in this system of public sports? Who are the owners of these innumerable horses? What is the main support of this machinery? And who are the workmen who set in motion its countless wheels? Whence is derived that incredible capital which is put to the hazard of chances in this deep and exciting game?

The horses of the turf are reared or acquired by many persons of the community, from the stabler, the training-groom, the horse-dealer, to the farmer, the country gentleman, the master of fox-hounds, the opulent merchant, the banker, the peer. None is excluded from this lottery of fair prizes, and every one may derive reputation and advantage from the possession of a horse qualified to take his place in lists confined to no order of chivalry, and demanding no heraldry but the purse. No difficulty anywhere exists in obtaining horses of the privileged caste. Great numbers of them break down in the preliminary trials, and many of the purest blood, after having run the first desperate match, which disables them for ever, may be purchased for the price of carrion. Nothing, then, is so easy as to obtain the materials for rearing the solitary Race-Horse, or, if the means allow, the extended stud; and accordingly, if we shall look to our racing calendars, and inquire into the history of the horses entered to run at the different courses, we shall find that they are derived from every class of dealers and breeders in the country. At the same time, there are always individuals of opulence and rank, who have made the business of the turf an especial concern, and maintain extensive studs, from which they can make a fitting selection.

Turning to the last century, which may be termed the golden age of the turf, we find amongst its unwearied supporters the DEVONSHIRES, the BOLTONS, the RUTLANDS, the PORTMORES, of those days; but perhaps the greatest supporter of the turf of the last age was WILLIAM DUKE of CUMBERLAND. This Prince possessed the most numerous stud in the kingdom. He was the owner of Herod, and of many fine horses. Herod, it has been seen, was the progenitor of a vast number of distinguished racers. In 1764, he beat the DUKE of DONCASTER'S Antinous at Newmarket, with six to four on Antinous, for 500 guineas a-side; and in the following year he beat the same horse, giving him 9 lb., over the same course, for 1000 guineas a-side. The match excited greater interest than any previous one in England. It was won by Herod by half a neck, and more than L.100,000 depended upon the issue. The Duke died in 1765. The year before his death Eclipse was born in his stud, and passed into the hands of Mr O'KELLY, who became the greatest breeder of the time, chiefly from the blood of Eclipse. This individual was born in Ireland, of very humble parentage. From the lowest degree of wretchedness he rose to extraordinary wealth. He entered deeply into all kinds of gambling, but, on the turf, displayed shrewdness, judgment, and caution. He bred many fine horses, and acquired the most valuable stud of breeding mares that any individual had before or has since possessed. Contemporary as a breeder, for a period of his life, with the DUKE of CUMBERLAND and O'KELLY, was the EARL of GROSVENOR, whose stud came to surpass in extent and magnificence any that had preceded it. He had many horses of great reputation, and gained immense sums on the turf,—insufficient, however, to cover the expenses of his breeding establishment. He died in the year 1802, after fifty years' connexion with the turf, his splendid stud passing into the hands of the now MARQUIS of WESTMINSTER. The MARQUIS of ROCKINGHAM and LORD BOLINGBROKE were likewise distinguished for their studs at this period, as were the DUKES of ANCASTER, CLEVELAND, KINGSTON, NORTHUMBERLAND, and many more. The early part of the reign of GEORGE III. indeed, was remarkably noted for the great support given to the turf by persons of distinction. The King himself gave a judicious encouragement to the sport; and during the progress of his memorable reign, the passion for horse-racing lost none of its force. On the contrary, it extended with the greater opulence of the country, and studs and race-horses increased in number, and in the cost of the establishments. The EARL of DERBY, the founder of the Oaks and Derby stakes, produced many fine horses on the turf, one of which, Sir Peter Teazle, is distinguished in the annals of racing. The EARL of CLERMONT, who died in 1834, at the age of eighty-three, having been nearly sixty years connected with the turf, the Honourable RICHARD VERNON, and Sir

THE RACE-HORSE.

Of the jockeys who have been in practice, some have been so distinguished that they are regarded as masters of their art. FRANCIS BUCKLE first appeared as a rider in 1783, when his weight, including the saddle, was a pound short of 4 st. He soon became the most successful rider on the turf. He rode the winners of five Derby, seven Oaks, and two St Leger stakes. In 1802, he took long odds that he would win both the Derby and Oaks, on horses not considered likely to win. His horse at the Derby was the DUKE of GRAFTON'S Tyrant, with 7 to 1 against him. Young Eclipse, considered to be the best horse of the year, made the play, and was opposed by Sir CHARLES BUNBURY'S Orlando, who contested every inch for the first mile. BUCKLE, from his observation of the pace, and his fine judgment, was satisfied that both horses would flag, so following and observing them, he came up with Tyrant, and won; Tyrant, being considered the worst horse that till then had won the Derby. BUCKLE had thus secured one of the two ends proposed. The other was effected under circumstances not less remarkable. The horse he rode, Scotia, was beaten three times between the Tattenham Corner and home, a distance of 4 furlongs; but, by dint of superb riding, BUCKLE got her again forward, and won the race by a head. Other instances might be given of his power to overcome difficulties by his judgment and fine horsemanship. He was once beaten by a lady, Mrs Colonel THORNTON, scarce, perhaps, inferior as a rider to himself. This was in a match between Colonel THORNTON'S Louisa and Mr BROMFORD'S Allegro. Mrs THORNTON, caparisoned in purple cap and waistcoat, with nankin skirts, not so long as to conceal her embroidered stockings and purple shoes, took the lead at starting, and kept it till approaching the distance. Here BUCKLE, putting forth all his jockeyship, succeeded in gaining the lead; but the lady, with no less address and skill, whipped her horse, pushed onward, and won the race by half a neck. This was the second race to her on the same day. In a match for four hogsheads of Côte Rôti, 2000 guineas, and 600 guineas more betted on her account, she cantered over the course, Mr BROMFORD, against whom she was to ride, paying forfeit. The same bold lady had once before appeared in a match on the race-course at Knavesmire. A hundred thousand persons had assembled to witness the spectacle, and more than L.200,000 Sterling depended upon the result. The lady, after displaying unwonted jockeyship, spirit, and good humour, lost the day, to the regret of the assembled multitude. Honest BUCKLE could scarce feel mortification at being overcome by such a rival. He continued to ride with undiminished reputation till past his sixty-fifth year, and died lately in a state of honourable competence, leaving behind him the character of a perfectly honest, kind-hearted man.

SAMUEL CHIFNEY preceded BUCKLE in time, but was cotemporary with him for a part of his career. CHIFNEY stood in the first rank of riders of a former age. He was principal jockey of the PRINCE of WALES, the DUKE of BEDFORD, the EARL of GROSVENOR, and other sportsmen of the time. He wrote the work called "Genius Genuine," which, notwithstanding its absurd title, and barbarous style, is worthy of attention. It shows the distinction between the riding of the turf and that of the manège. CHIFNEY likewise illustrated the difference in practice, being as timid and awkward in the hunting-field as he was bold and skilful on the course. CHIFNEY bequeathed his mantle to his son, now one of the most eminent jockeys of his day.

SAMUEL CHIFNEY the younger is distinguished by his boldness, his originality, his tact, his elegance of seat, and his judgment of what is termed pace. His maxim is to wait until the time of decisive action arrives, which he calculates with remarkable precision; then stealing quietly but rapidly up to his opponents, he makes the terrific rush, which decides the race. He is averse to "making running," as it is called, almost to a fault. Be the number of horses what it may, CHIFNEY is generally amongst the last, calmly observing the movements of his rivals, and waiting his time. In a famous race, in which his opponent, JAMES ROBINSON, was a rider not less distinguished in *his* style than CHIFNEY in that in which *he* claims pre-eminence, the peculiar character of CHIFNEY'S riding was finely shown. ROBINSON, on Lucetta, led; CHIFNEY, on Priam, followed close in his wake. If ROBINSON attempted to look over his left shoulder to see how his opponent was running, CHIFNEY was bent to the opposite side, so as to be out of sight. In this manner the race was run almost from end to end, nor could ROBINSON once get sight of his wily adversary until the latter passed him to gain the race. This Fabian horseman now seldom rides. When he does, the betting on his horse never fails to rise.

Another rider, of a different school, but perfect in his own, is JAMES ROBINSON, just mentioned, educated in the stables of one of the chief trainers of Newmarket. The distinguishing characters of this jockey are coolness, gentleness, and thorough tact. ROBINSON, though the most elegant rider on the turf, makes his superiority be felt rather than seen. The greatest reliance is placed by every one on his steady judgment; and so great is his success, that a popular saying is, that ROBINSON is worth half a stone to the horse he rides. All his fellows, CHIFNEY excepted, yield the palm to this accomplished rider, and fear to encounter his unfailing skill. He has won more races than any man on the turf. In 1827 he rode the winner of the Derby and St Leger, and, it is reported, received a present of L.1000 for the latter race from a gentleman whom he had never before seen. It is said that in 1824 he declared to his friends that he would win the Derby on Cedric, the Oaks on Cobweb, and be married within the week; all of which undertakings he accomplished. Further accounts might be given, of the GOODISONS

THE RACE-HORSE.

WILLIAM, who succeeded to the stud of his uncle the MARQUIS of ROCKINGHAM, and died in 1833 at the age of eighty-five, having been about sixty-two years actively connected with the turf; the DUKES of GRAFTON, HAMILTON, DORSET, PORTLAND, BEDFORD, and many noble persons more, all keepers of large studs. Of Commoners the list is very extensive. Amongst these it will appear strange to include the illustrious name of CHARLES JAMES FOX; yet so it was. Mr FOX'S own stud was not remarkable for its goodness, but he betted largely, as was the fashion at the time, and it is said with success. At a match at Newmarket in 1772, he is said to have won about 16,000 guineas, by taking the odds on a horse that lost by half a neck. On coming into office with LORD NORTH, in 1783, he suddenly gave up his stud, and abandoned the racing clubs; but this was only for a season, for, when still in office, in the same year we find him at the meetings of Newmarket exhibiting all his accustomed eagerness,—his marvellous and versatile genius appearing to vulgar observers as much in its proper sphere at the betting-post as in the senate. Approaching nearer to our own times, we find the name of Sir HENRY VANE TEMPEST. This gentleman was early on the turf. A famous match of his is familiar to all sportsmen. His horse Hambletonian, got by King Fergus, dam by Highflyer, grandam by Matchem, ran a match with Mr COOKSON'S Diamond, descended from Herod, over the course of Newmarket. The match was for 3000 guineas, besides large bets between the parties. So close was the contest, that, even within a few strides of the winning-post, the horses were head to head, when, by a grand effort, Hambletonian, ridden by BUCKLE, came in by half a neck. Incredible sums depended upon this contest, the north country gentlemen betting on Hambletonian, who was Yorkshire born, and the Newmarket gentlemen as freely taking the odds in favour of his rival. In this contest the blood of Eclipse prevailed over that of Herod, and Sir HENRY VANE TEMPEST, with just feeling, would never permit his noble horse to hazard his honours by entering the lists again. We find also living, or lately living, in our own times, amongst the supporters of the turf, the names of the Dukes of GRAFTON, CLEVELAND, RICHMOND, RUTLAND, PORTLAND; the Marquises of WESTMINSTER, EXETER, CONYNGHAM, and SLIGO; the Earls of EGREMONT, BURLINGTON, WARWICK, VERULAM, CHESTERFIELD, SEFTON, JERSEY, LICHFIELD, ALBEMARLE, WILTON; the Lords LOWTHER, WHARNCLIFF, SUFFIELD; Sir FRANCIS STANDISH, Sir MARK WOOD, Sir J. SHELLEY, Sir GILBERT HEATHCOTE; Generals GROSVENOR and GOWER; Colonels PEEL and WILSON; Messrs WILSON, WYNDHAM, ROUSS, and great numbers more recorded in the sporting annals of the times; and even if we could exhaust the list of those who are chiefly found at the great courses, as Newmarket, Epsom, Ascot, Doncaster, we should have a catalogue behind of those who confine themselves to what may be called the provincial courses, and then we should have those who, without keeping regular racing studs, rear thorough-bred horses, and bring them from time to time upon the turf.

The classes referred to are the legitimate supporters of this system of amusement. They bet upon the result; but the bet, generally speaking, may be regarded as secondary and subservient to the sport. But the sport involves not merely the contest for victory in the race, but the contest of judgment on the merits of the rival horses, and on the chances of success or failure. No mode except the bet has been devised, or appears suitable, for this purpose, and hence it has become an integral part of the system. The bet, however, may degenerate into abuse, and connect with the business of the turf persons whose sole end is gain, and who avail themselves of the recognised usages of betting to make the system an engine of mere mercenary calculation. In this class are comprehended persons of various ranks of society, from the lowest retainers of the course, ostlers, discarded jockeys, and blackguards of every degree, to those who have the means to make good their engagements. The former are mere ruffians, known under the name of blacklegs, and fitting subjects for the pillory or the whipping-post. Many of the others are adventurers, who are not less alien to the legitimate business of the turf, who contribute nothing to its support, and who merely make it the subject of a calculation of chances for the purposes of profit. Some of these adventurers indeed acquire studs, and then take their station amongst the contributors to the actual business of the course, the origin of their connexion with it being forgotten in their success. It is impossible indeed to draw a line of demarcation between such persons and those who merely bet as occasion offers. Numbers of these last are of the more opulent classes, as country gentlemen, the wealthier yeomen, and persons of trades and professions of all kinds. And besides these, are the ordinary frequenters of the racing-grounds, who assemble merely to enjoy the spectacle, and bet, because it amuses them, on the favourite horses, or in such other way as the feeling of the moment dictates. It is plain that these classes are distinct in their relations to the turf from the class of gambling adventurers. The bet with them is merely part of the sport, and the test of judgment on the chances of the winning and losing horses. But doubtless there is a mixed class of feelings introduced, and no certain means exist for discriminating between the regular gambler, who speculates upon the events of the turf with the same feelings as on the chances of the dice, and those who make the business of betting secondary and subservient to the pleasure and interest they derive from the spectacle itself.

The institution of the Course is plainly one in accordance with national character, and interests deeply a great part of the population of all classes. The prevailing fondness for this gay and animating pursuit need be sought for, it is apprehended, in no other principles of human nature than are employed to explain the love of all those sports and occupations of the same kind which

THE RACE-HORSE.

CHARLES BUNBURY, are noted amongst the sportsmen of this period. The latter gentleman survived until the year 1821, at the age of eighty-two, keeping up his connexion with the turf till the last. He was mainly instrumental in doing away with the four-mile races at Newmarket, and in producing the unhappy innovation of running two-year-old colts.

The name of the DUKE of QUEENSBERRY is associated with all the proceedings of this period. He was successful, shrewd, and skilful in resources. Old Q., as he was afterwards called, was never to be *taken in*. His famous carriage match, about the middle of the century, is well known. The match was for 1000 guineas. A carriage was to be constructed with four wheels to carry one person, and to run nineteen miles within the hour. On the day of trial, a carriage, of the weight of an alderman, appeared on the heath of Newmarket, with spokes of whalebone, traces of silk, and so forth, drawn by four thorough-bred horses, ridden by boys, dressed, we are told, in blue satin waistcoats, buckskin breeches, and white silk stockings, followed by a postilion in red silk stockings, and preceded by a groom in crimson velvet to clear the way. The traces were made with springs to roll up on the relaxing of the draught, so that they might not get beneath the horses; and cases of tin kept dropping oil on the axletree, to prevent its taking fire. A space for the course was corded in round the heath, and the fairy equipage was in motion with the speed of the wind. The horses ran away with their riders, and did the first nine miles in four minutes, and the match was completed in fifty-three minutes twenty-seven seconds. Other stories are on record regarding the eccentric Duke. On one occasion of a match, a large sum of money was offered to his jockey if he would lose the race. The jockey honestly told the Duke, who coolly desired him to take the money. When the horse came to the starting post, the Duke too was there. He said he had a mind to ride the horse himself, so, throwing off his greatcoat, he was seen to be equipped in racing attire, and mounting, he won the race with ease. In 1756 he had a successful match with the DUKE of HAMILTON, when both noblemen rode their own horses, and when enormous sums depended on the result. His horse, Dash, beat Sir Peter Teazle over the six-mile course of Newmarket, and he gained two others, thousand-guinea matches, three times round the Round Course, or a distance of about twelve miles. He kept a select, but not a numerous stud. He died in 1810, at the age of eighty-six.

In 1784, we find the gay and accomplished PRINCE of WALES, then twenty-two years of age, an eager supporter of this class of amusements. In 1791, an event occurred which caused the Royal Prince to quit the turf in disgust. The story has been often told, but as it has not always been fairly told, it is but just to repeat it. On the 20th October, the Prince's best horse, Escape, ridden by SAMUEL CHIFNEY the elder, was beaten at Newmarket by Coriander and Skylark, Escape being the favourite horse in the betting. On the following day, the betting being 5 to 1 against Escape, this horse, ridden by CHIFNEY, beat Skylark and the other horses easily. At this result, a violent outcry was raised by the losers, who did not hesitate to say that, on the 20th, CHIFNEY rode to lose, and that the Prince himself was implicated. The character and station of the youthful Prince might have saved him from this cruel suspicion. He declared that he had no bets on the first day's race, and but inconsiderable ones on the second. He caused CHIFNEY to be rigidly examined, when the latter made affidavit that he had done every thing which his judgment suggested to him to make his horse win on the first day; and thirteen years later, in his Genius Genuine, he gave a narrative of the proceeding, accounting for the defeat of Escape on the first day by his being short of work, and for his winning on the second by the effects of the gallop in putting him in trim. Notwithstanding the explanations given, the Jockey Club, through Sir CHARLES BUNBURY, informed the Prince, that if he suffered CHIFNEY to ride his horses again, no gentleman would ride against him. The proceeding seems contrary to the rules of evidence and the principles of fair dealing. The Prince declared his own innocence, and no fact which has ever been communicated to the world proved his guilt, or even rendered the surmise of it probable. If he believed his jockey innocent, he could not dismiss him without injustice and dishonour; and the demand that he should do so was in itself an insult and a wrong. The Prince felt it to be both, and for many years retired from all connexion with the turf. About the year 1800, however, his Royal Higness began to restore his stud, in which he took great delight, and resumed his accustomed amusement. He sent his horses to Brighton, Lewis, Ascot, Goodwood, and other meetings, even after he had ascended the throne, and by degrees restored the Royal stud to great magnificence; and to his latest hour, his Majesty took much interest in the amusements of the course. The stud at Hampton Court passed into the hands of His late Majesty KING WILLIAM, who judiciously abandoned training for the turf, but acted on the principle of encouraging the breed of horses, by instituting annual sales of the young horses which were bred at the establishment. Soon after the accession of Her present Majesty, the stud at Hampton Court was wholly broken up. It is to be regretted that the horses, amongst which were some Arabians, presented by the Imaun of Muscat, believed to be of the purest of the Desert Breed, should have been dispersed and carried to other countries. But otherwise the measure, which excited so much angry discussion at the time, appears to have been discreet and wise. Fitting encouragement can be given by means of the Royal plates and otherwise to the rearing of horses for the turf, without connecting with its concerns the personal acts of the Sovereign.

Of the other great supporters of the turf, from the period of the American war down to our own times, were EARL FITZ-

false or dangerous move has been made; that is, to make a series of bets in an opposite course from the previous ones. A man may win, by giving odds against every horse in the field. Thus, if five horses start, by betting 4 to 1 against each, he loses nothing, for only one can win, on which he loses 4, and the remaining four lose, on which he gains 4; but if he bets 3 to 1 against all, he *must* win, for on the winning horse he loses 3, but on the losing horses he gains 4. If twenty horses run, 18 to 1 may be betted against every horse in the field; for only one can win on which 18 is lost, but nineteen must lose on which 19 is gained. This is the simplest case that can be put; but it shows that, by a skilful adjustment of odds, a man may gain a large sum on a race, while he cannot lose any thing. But while it is rare for a person to be able to balance all his bets so that he *must* win, and *cannot* lose, yet the cases are innumerable in which he is able so to hedge or counter-bet, as to bring the chances in his favour for winning to a maximum, and reducing those against him to a minimum. Large fortunes have been acquired by skill in betting and counter-betting, yet the system is legitimate in itself, and nothing more than a fair exercise of the knowledge and address of the individual. But what shall be said if fraud is used, either to support the system, or to counteract it when fairly pursued? What if horses heavily backed are fraudulently withdrawn from the course at the moment of running? What if those that could win are made to lose? It is seen that the owner of a horse may, by betting against his own horse, gain by his losing the race; and, by having his horse largely backed, and then running to lose, pocket enormous sums. Trainers and jockeys are now in the habit of betting largely, not on the horses intrusted to them, but on the general business of the race. What a frightful temptation is this to people in their condition of life, and how multiplied is the temptation, when there are confederacies of gamblers, chiefly in the great cities, who have the means to offer bribes too great for ordinary virtue to resist? Deceptive trials, and lying reports, may all lend their aid; and even the poisoned tank, and debilitating ball, may be called into action, the one to deprive the noble victim of life, the other, with scarcely less nefarious aim, to unfit him for exercising his powers when brought into the field. In the year 1812, a ruffian called *Dawson* was executed for administering poison to various horses. He had been engaged in these practices for four years. He had effected his ends by means of arsenic or corrosive sublimate, sometimes introducing the poison by means of a syringe into the locked troughs at which the horses drank. The wretch suffered, while the heartless criminals who had set him on remained undiscovered.

One of the practices pursued is to get up favourites for the great stakes. This is done by means of lies, false trials, deceptive bets, high prices paid for horses, so as to enhance the public opinion of their value, and by devices of all sorts. Large sums are staked on the favourite horse by the public. But is it intended that he shall win? No: it is settled that he shall lose. A little management of the jockey will save appearances, and thousands are to be duped that the owner and his confederates may pocket the spoil. Enormous sums, as 3000 guineas, or more, are paid for a colt, we will suppose, to start for the Derby. What is the meaning of this? Is the owner to back this colt against a hundred horses he has never seen, twenty or thirty of which (many of them, for any thing he knows, better than his own) are to start? No:—The purpose is not to win the Derby. The owner and his confederates are to gain by the loss of the race, and the dupes are to back the favourite. One of the finest horses that has appeared on the modern turf, Plenipotentiary, who had never been defeated,—who had gained the Derby without a struggle,—and had walked over Ascot Heath, because no horse had dared to contend against him,—started for the St Leger with 5 to 2 in his favour. Did he win the race? A horse with 50 to 1 against him came in the winner. Another, who had not even been placed at the Derby, defeated this unrivalled horse, who came in the last but one of eleven that started. In the following year he reappeared at Newmarket with such success, as to make it be believed, that not a horse at Doncaster could have kept pace with him for fifty yards together. He was then backed at great odds to run at Ascot; but on the day before the race he was carried away, to the consternation of the backers, no one knew wherefore, and never again was seen on the turf. Doncaster had already become noted for exploits of a suspicious kind. In the year 1832, at the commencement of the meeting, it had become known that the proprietor of the Athenæum gaming-house in London, as yet new to the public honours of the turf, had purchased Ludlow, a horse in high favour, for the St Leger, for 5000 guineas. Suspicion was at once excited, and mistrust accordingly marred the sport of the day. The gambler declared that all his intents had been fair and honourable; that he had betted L.15,000 on the horse; and defied all the world to prove that he had betted one guinea against him.

The betting of jockeys and trainers to a vast amount has now become a system extensive, open, and avowed. It is no longer the restricted and temperate betting which prevailed in former times on horses in which the masters and employers of these people had an interest, but they must have their Books as regularly as the boldest gambler of the course. Now, here is a system which strikes at the very root of all confidence in the affairs of the turf. What! the horses of sportsmen to be intrusted to a set of avowed gamblers, who may have a direct interest in causing their defeat. What confidence can be placed in a jockey in whose success in a match with another horse he or his confederates may have thousands depending? Will he win in opposition to an interest so great? Those who believe so, must have a higher confidence in the virtues of Newmarket than our knowledge of

THE RACE-HORSE.

keep the mind in action. We need no more inquire why a man acquires a love for the race-course than for the chase, for travelling, or for active occupation of any kind. The machinery of human thought, it seems, must not be allowed to rust from inaction, and those who would limit its movements in any single course assuredly manifest an ignorance of human nature. What is termed amusement can no more be excluded from the category of human pursuits than the occupations of business, of philosophy, or of all the graver objects which occupy the mind, and which, as society advances, become more multiplied and varied. One of the sternest of ancient moralists declares that the man who has no time to be idle is a slave; but the idleness of which he speaks is not that of the mind, but the diversion of thought to another class of objects. Limiting our reflections to the condition of society which exists in this country, it were as foolish as vain to seek to restrict within too narrow a sphere the pleasures of the people. If they are rudely restrained within one channel, they may take another less favourable to private happiness, to public morals, and to national character. The horse-race has been a pastime of the people of England from ancient times, has superseded many rude and cruel sports, and has attained a refinement in accordance with the spirit of a more cultivated age; and it may be questioned if there is any one pursuit in the class of what are called public amusements, which, with so little prejudice to the character of the people, is calculated to produce so great a degree of interest and relaxation. It will be said that the system is tainted with the spirit of gambling and play. Would that it were less so! but the fact admitted does not invalidate the fair conclusions which may be drawn. The love of gain cannot be truly said to be the primary end of those who delight in this gay and animating spectacle. The bet is but the test of skill with respect to the issue; and the nature of the pleasure derived from success is not altered because the guerdon is a purse of gold and not an olive crown. If the gain is acquired, the loss is as freely hazarded. Will it be said that the whole is a game of chances, and therefore immoral? This sour morality has as yet found favour in no age of mankind. If the principle were admitted that gain is unlawful when derived from a calculation of probable results, we must interrupt not only the pastimes but the business of mankind. We must close the stock exchange, proscribe assurance companies, and stay every freighted vessel that quits our shores on a voyage of adventure. The objection, we think, can scarcely be to the principle of the system of betting, as connected with the chances of the turf, but to the extent to which it is carried, and the abuses which accompany it. The sums hazarded indeed are large, but these must be measured in some sort by the wealth of the community and the usages of society. It does not appear that, in any kind of games, the greatness of the stake is a serious evil. Experience would rather lead to the conclusion that it is the reverse, as it affects the character and feelings of the parties concerned; and if at the race-course large sums are won, corresponding sums are lost, and the general balance is not greatly affected. With respect to the abuses of the system of the course, these indeed are many, but all of these are not necessarily inherent in the system of the course. Persons make the business of the turf an engine of gambling; but it must be remembered that gambling is not confined to the turf, and that the same persons who gamble on the chances of a horse winning or losing at a race, will gamble on the chances of a dye, or of any other contingency that presents itself. The gamblers of the Athenæum, who scarcely know a horse from a cow, would, if horse-races were abolished to-morrow, find subjects equally suited to their purposes. It is not found that gambling is less extended in countries where the race-course is unknown; nor does it seem that morality in these countries would suffer if the hazard were on the winning of horses in place of on the chances of cards or the turning of dice.

But unhappily the abuses of the turf are of no trivial kind, and may excuse the severest scrutiny. These abuses have attained a magnitude which the world will find it difficult to credit, and have been combined with a system of methodized villany and plunder, which, if not counteracted by all the power which can be employed, must, at no distant time, banish this noble pastime from the sports of the people of England, and drive away from its contamination its most honourable supporters. The system of betting, as applied to this amusement, it is to be observed, is of great complexity, involving calculations on the chances, not only of the winning, but of the losing horses, and on a variety of contingencies distinct from the chances of a horse winning or losing by the exercise of its powers. Often when bets have been taken on the winning or losing of a horse, contingencies may arise to affect the result in a manner unseen. A horse that has been one day a favourite, and largely backed, may on the following one have his chances of winning reduced to nothing. The person who bets watches the turn in the odds as a stockbroker watches the changes in the market, and avails himself of these by such a system of betting and counter-betting, as throws the most expert calculations of the Stock Exchange into the shade, and would do credit to the most skilful calculator of chances. A man, for example, begins to "make his Book," as it is termed, at the new year, on the Derby, the Oaks, and other great stakes. The nominations have taken place when the colts were a year old, and consequently many of them die before the day of running, and many of them turn out good for nothing on trial; and of a hundred or more entered, only twenty may start. Now, reflecting on the vast variety of contingencies here called into play, until the horses appear at the starting-post, we may imagine what a curious complication this Book must present, and how much of skill it must demand to place the bets in the most favourable position to gain, or to avoid loss. How often does it become necessary to "hedge" when a

prey of trades-people and others, who are foolish enough to draw in this lottery of many blanks. But the grand performers in the play are a very different class of persons. These gentlemen have risen far beyond the vulgar honours of the Sporting House. They "do the thing" on a princely scale, and can exhibit "Books" enough to make a "royal merchant" stare.

The principal of the present "extensive operators on the betting market," as Mr WHYTE gently terms them, are, it seems, Messrs THEOBALD, BLAND, BOND, ROBINSON of Manchester, HOLLIDAY, JUSTICE, GREATOREX, WAKEFIELD.* Of the kinds of persons who, in the deep lottery of the turf, are able to rise with the wheel of fortune, the following graphic sketch, from the pen of Mr APPERLEY, the most learned, useful, and happy writer on this class of subjects, will convey an idea. "Of the public racing men at Newmarket, Messrs CROCKFORD, GULLY, RIDSDALE, SADLER, the CHIFNEYS, &c., we need not say much, their deeds being almost daily before us. But looking at the extraordinary results of these men's deeds, who will not admit racing to be the best trade going? Talk of studs, talk of winnings, talk of racing establishments! Our GRAFTONS, RICHMONDS, PORTLANDS, and CLEVELANDS, with all their means and pliances to boot, are but the beings of a summer's day when compared with those illustrious personages and their various transactions and doings on the turf. Here is a small retail tradesman dealing in a very perishable commodity, become our modern Crœsus in a few years, and proprietor of several of the finest houses in England! Behold the champion of the boxing-ring, the champion of the turf, the proprietor of a noble domain, an honourable member of the Reformed Parliament, all in the person of a Bristol butcher! Turn to a great proprietor of coal-mines, the owner of the best stud in England, one who gives 3000 guineas for a horse, in the comely form of a Yorkshire foot-man! We have a quondam Oxford livery-stable keeper, with a dozen or more race-horses in his stalls, and those of the very best stamp, and such as few country gentlemen, or indeed any others, have a chance to contend with. By their father's account of them, the two Messrs CHIFNEY were stable boys to EARL GROSVENOR at eight guineas a-year and a stable suit. They are now owners of nearly the best horses, and, save Mr CROCKFORD'S, quite the best houses in their native town. There is the son of the ostler of the Black Swan at York, betting his thousands on the heath, his neckerchief secured by a diamond pin. Then, to crown all, there is Squire BEARDSWORTH of Birmingham, with his seventeen race-horses, and his crimson liveries, in the same loyal but dirty town in which he once drove a hackney coach."

If the institution of the turf is to be preserved to the people of England, it is manifest that means must be used to free it from the taint and scandal which are now attached to it. In a country where the civil and moral relations of men in society are deemed worthy of regard, it is impossible that a system, based on deception, founded on the corruption of the humbler instruments employed, and methodized into a course of public plunder, can be suffered to remain engrafted on the pastimes of the people. Here is no question of a wretched gambling-house to be put down, of a petty culprit for some miserable game of chances to be rendered amenable to penal statutes, but of a system of wholesale fraud, carried on by troops of plunderers in the face of day, supported by funds of incredible amount, and spreading the poison of a dangerous example through the medium of public sports. Is this a matter to be left to the conventional regulations of clubs, and to the inconsiderable powers of stewards of race-courses? The matter, we say, is one of public concern, involving results affecting national character, and public decency and morals; and if these popular sports are to be preserved at all, it is the imperative duty, too long neglected, of the legislative powers to provide for their fitting control. Can anything be more monstrous than that, when harsh laws are levelled against humble sports, a system of gambling, unequalled for foul dealing in any country in the world, is suffered to take root in the heart of society, without a single check to its utmost abuse? Can the continued contact of such contamination be without its effects on the moral feelings of the people? Can the youth of the country come safely within the poisoned atmosphere of the betting-room, and learn that men may, without reproach, rise to affluence by the basest arts? Can the gentlemen of England maintain the honour of their rank while mixing in the pursuits of felons, and sharing a dishonest spoil? Few lessons, let us be assured, are more dangerous to the people than that of successful fraud: And woe it is to a country, when men are taught to look lightly on offences which touch the principles of honest dealing. Excessive public gambling, under any circumstances, is perhaps to be regretted; but when it is fraudulent at the same time, it calls for all the punishment which laws tempered with mercy can inflict on thieves and swindlers. It may be said that it would be difficult to reach this class of offences; and so it is to reach the crimes of forgery and other secret acts against society; but ought the laws therefore to sleep, and allow the plunderer to carry off the spoil in safety? It cannot be doubted that a system of law vigilantly executed, applicable to the concerns of the turf, would quickly abate the existing evils, and restore this popular sport to at least its former character. This is not the place to enter on so wide and delicate a subject. A parliamentary inquiry would seem to be the most suitable course, the effect of which would be to expose the full degree of the evil, and suggest the fitting remedies. All men who abhor fraud and value public decency should support such an

* WHYTE'S History of the Turf.

human nature elsewhere justifies. The first admission on record of a jockey betting on the horse opposed to that which he himself rode, is by the elder CHIFNEY. He lost the race, but he justifies himself by saying, that he knew the horse he rode was unfit to win. The argument of the jockey is not worth the tassel of his velvet cap; and the principle contended for needs only a little extension to justify every kind of roguery. This very jockey lived to acquire a splendid stud, to build houses, to sport his equipage, and to experience the revolution of fortune's wheel, by dying a beggar. But the training-grooms, more trusted still, what can be said of their concern with the gambling speculations, by which their interest and their duty may be placed at variance? What need of their master-key to guard their troughs from the introduction of the arsenic or sublimate, or of the live fishes, to show that the water is as pure as their own thoughts? A few orders of the head-groom on the training-ground, a few doses out of time of Barbadoes aloes, a gentle opiate from the apothecary's shop, all for the health of the horse, will answer every end. Or, should these disgraces not be perpetrated, how many are the means by which races may be lost and won! A simple breach of confidence may answer the end; information may be conveyed sufficient to neutralize the hopes of the confiding employer, and the one Book be made square although the other may become a memorandum of ruin. It were most harsh, most unjust, to say that, amongst the training grooms of our great courses, there are not, and have not been, many worthy men, as incorruptible as the proudest that can command their services, and the more to be honoured that they are exposed to such corruptions. It is the system which is here in question, which places men's interest in opposition to their duty, and leads them into a temptation too strong for human weakness. That it is through the inferior instruments employed that the higher and more guilty agents are enabled to move their machinery of fraud is beyond a question; for how should a race be lost at will, if those who ride the horses or prepare them for the turf were not implicated? These superior agents may indeed directly influence the jockeys, and we must pity the poorer riders who are required to lose a race, although the scoundrels that corrupt them are able to reward their obedience. It is the first lesson in deception they receive, the effect of which is to rear up a generation of profligates, ready to sell their services, until they shall have acquired the means to set up for themselves. But it is apparent that the facilities for this kind of corruption are immeasurably increased when the superior jockeys and trainers enter on the turf as principals, and become necessarily implicated in the same class of proceedings. Therefore, we say, that the strictest means ought to be adopted for preventing trainers and jockeys from engaging in the gambling business of the turf.

Of the effects of this system of pollution, the proceedings of the modern turf are a continued exemplification. It has almost ceased to be the practice to bet on horses from a simple knowledge of their powers and qualities as exhibited by their public running. The bet is often founded on private information, purchased at a high price, and by a betraying of confidence; or on a knowledge of what parties bet for or against certain horses. The trumps are marked and the pack shuffled by those who are deepest in the game, while others are content to observe their superiors in intelligence, and to play their own stakes accordingly. When a number of influential bettors back a horse to lose, he will be a bold man who will back him to win, founded on mere knowledge of the animal's powers. One of the best authorities upon such subjects declares, that a horse "with the best blood of England in his veins, and the best jockey on his back, shall have no more chance to win when backed heavily to lose than a jack-ass." Another authority, himself a rider and owner of race-horses, long ago declared, that if Eclipse were now in the field, and heavily backed to lose by certain influential bettors, he would have no more chance to win than if he had the use of only three of his legs. In the great Derby stakes of 1832, in which a chestnut colt, St Giles, of no peculiar promise, was the winner, it was believed that every horse but one had been "made safe;" and other examples could be given, in which similar suspicions, whether well founded or not, show the opinion of the parties best qualified to judge, of the integrity of those on whom the winning or losing of the race depends. Such is the condition to which the English turf is reduced by confederacies of gamblers and swindlers, who are able to apply their illgotten gains to contaminate the whole body of those whom money can render subservient to them. It is only within a period comparatively short that this practice of wholesale villany has arrived at its full maturity of system, and that persons raised from the lowest conditions of life, and pursuing gambling as a trade, have acquired that influence on the turf which enables them to move the inferior puppets at their will, and elbow from their proper place the legitimate supporters of this ancient sport of the people. That abuses, and grievous ones, have always existed in the system, is too true; but these abuses were as dust in the balance to the heavy mass of profligacy and dishonour which now weighs down the scale. Foreigners will hear with wonder that, not in the city of London only, but in many of the larger provincial towns, there are regular establishments, where betting proceeds as systematically and constantly as the business of the Stock Exchange. In one great establishment alone in London, TATTERSAL'S, L.100,000 and more sometimes change hands in a day. But this is the regular establishment for gentlemen really connected with the turf. There are, however, clubs or houses in the Capital which are mere places of gambling, where the parties frequently know nothing of horses except as things to make money of. Many of these are a sort of low taverns, called Sporting Public-houses, frequented by broken down hangers-on of the turf, and sharpers of every degree, who bet small sums, and make

THE RACE-HORSE.

the error is, if possible, yet more palpable. The powers which the Race-Horse is required to exercise are those of excessive speed, which infers the greatest tension and displacement of parts of any other kind of labour. Nothing, it is known, gives so great a tendency to founder, spavin, curbs, sprains, hernia, and the like, as excessive exertion of the powers of speed by a young animal; and even when no perceptible effect of this kind is produced, how often are the seeds of disease sown in the system, to appear in an after season in the disordered functions of the respiratory and other organs? Nor is this all in the case of the Race-Horse thus cruelly misused. To fit him for his future task, he must be deprived of liberty, and subjected to artificial feeding and training almost from the time he quits the side of his dam. No time is allowed him for that exercise in the fields which his instincts point out as the most suitable and natural, nor for partaking of that food in the open air, which is the best fitted of all others to preserve health, and answer the demand of the sanguiferous system in a young animal. He must be trained, bled, physicked, sweated, and subjected to restraint in his natural motions, at the time when the animal functions should have their natural play. Can any one who has any knowledge of the animal system in general, or of the temperament of the horse in particular, doubt that such a system must enfeeble the powers of the body, and act injuriously upon the progeny? Is it possible to believe that, under a system of this kind, carried to the degree to which it now is carried, numbers of the turf-horses of England are not broken down and undermined in constitution long before their natural powers have been perfected? Childers and Eclipse did not appear on the turf until the age of five. Had these fine creatures been run at the age of two, a very different estimate might have been formed of their powers, and themselves have been racked, foundered, or otherwise injured, before their full forces could have been exhibited, and thus the English Turf might have been deprived of all the benefit which it has derived from the numerous progeny which these animals left behind them. Further, the Race-Horses of England have become the boast of the country, and are the means by which the property termed blood is communicated to all the inferior races. Is it fitting that a breed of horses which has been cultivated with so much care, which has attained to so much excellence, and which may be applied to purposes so useful, should undergo deterioration, in however slight a degree, in order to promote the purposes of selfishness and gambling; and of gambling, too, not depending upon the powers of an animal capable of exerting them, but of a young creature overburdened by a cruel task? What is this game but the stealing of a miserable year or two from the youth of the growing horse, that he may sooner bring to his owner an unworthy gain? The scandal should be proscribed on the English Turf. If the feelings of those engaged in it will not lead them to abandon it, legislation will not be out of place to preserve the breed of these noble horses, and protect them from the cruelty and improvidence of their masters.

Drawn by Mr. Nicholson R.S.A. from a Painting by Mr. Shiels R.S.A.

Drawn on Stone & Printed by Parkland

THE OLD-IRISH HUNTER.

Gelding, 11 Years old, the Property of Mr. Scully, Limerick; bred by Mr. Barry, of Sundville, of the Old Merry Andrew line

THE HUNTER.

PLATE III.

OLD IRISH HUNTER, a Gelding, the property of D. L. SCULLY, Esq., Limerick; by Young Wottle, dam by BEVAN'S Andrew, grandam by Sankey, greatgrandam by Merry Andrew, known as the Miltown Andrew.

To the Horses which, in the British Islands, are peculiarly fitted for the exercise of the modern chase, it is usual to apply the term Hunters. These form a class rather than a breed of horses, because different varieties of horse may be used for the purpose of hunting, as the Race-Horse itself, or the superior class of saddle-horses of any kind. Yet, as the methods of hunting now pursued throughout the country are nearly similar, and as horses possessing a peculiar kind of properties are the best suited for this exercise, a certain similitude of characters has been established between all the members of the class, on which account no error will result from considering the Hunter as a variety or breed, in the usual acceptation of the term.

The modern Hunter differs greatly in his characters and form from the horses formerly employed in the chase in this country, having partaken of that tendency to a lighter form of which all the larger horses used for the saddle have partaken, and this in an increasing degree, within the last half century.* The same means, although with certain modifications, have been employed to form the Hunter as those used for the Race-Horse. The lighter and more agile horses of the warmer countries have been mixed in blood with the pre-existing races, so that the form of the latter has been moulded to a new standard. But this has not been done with the same system in the case of the Hunter as of the Race-Horse, nor with the same exclusive reference to the properties of speed. No breed of distinct lineage has been formed, whose descendants, mixing only with one another, have at length approached to a common type. The Hunters have been mixed not only with one another, but with every other race which seemed fitted to give the conformation and characters required. The horses of Spain, Italy, and Turkey, nay of Barbary and Arabia, have been resorted to in the case of the Hunter as of the Race-Horse; but the greatest and most direct effect has been produced through the medium of the Race-Horse itself, which has been employed ever since the institution of the regular Course to communicate its properties to the Hunter, as to the other classes of saddle-horses of the country. This mixture of the blood of the Race-Horse with that of the horses designed for the chase has been continually increasing, so that the characters of the modern Hunter have been more and more approximating to those of the thoroughbred horse. Yet a great distinction has hitherto existed, and ought still to be preserved, between them. The Race-Horse is designed essentially for the exercise of the property of speed: the Hunter is also required to possess a degree of speed sufficient for the uses to which he is destined, but with this he should be possessed of endurance, and of the strength required for carrying the weight of his rider over an unequal surface. We may, if we please, so alter the character of the chase as to render it a rapid gallop for a short space, so that fleetness and lightness shall be more sought for than strength and the power of endurance; but even in this case a distinction will exist between the characters suited for the Course and those required for the Hunting-field. The Hunter should possess a good fore-end, that he may pass safely along the rough surface over which he is urged, and over the obstacles which he encounters. The low fore-end and elevated hind-quarters, which are suited to the power of rapid progression over a smooth surface, would, in the Hunter, be inconsistent with safety; and the tendency to the ewe neck, which, in the short and violent gallop of the Course is admissible, would, in the case of the Hunter, be inconsistent with sensitiveness to the rein and the ease of the rider. The neck of the Hunter should be sufficiently muscular, and his chest just so broad as to indicate strength without heaviness. The long stride of the Racer not being required in the Hunter, he should possess the conformation which indicates strength in the dorsal and lumbar regions, that is, he should be well-ribbed home, and have the back moderately short. In the length and development of the hind-quarters, in the formation of the limbs, muscular to the knee and hock, and below these joints tendinous; and indeed, in almost all the other characters which indicate a well-formed horse, the two classes may be said to agree, except that the Hunter should be shorter legged, according to the common expression, that is, should have the limbs bear a less proportion to the trunk than the

---

* The figure in the Plate exhibits the form of one of the older families of Hunters, now nearly extinct, known as the Old Irish Hunter. The individual of which the portrait is given is of a line familiarly known as the Merry Andrew strain. He is amongst the last living descendants of the pure line, of which a fine carriage-horse, taken over to Ireland about a century ago by one of the O'BRIEN family, was the progenitor.

THE HUNTER.

Racer, in whom this character may be sacrificed for speed. To describe the Hunter, indeed, is merely to describe a well-formed horse, in which exists that harmony of parts which consists with the best exercise of the powers of the animal. The perfect English Hunter is beyond a question the finest variety of horse that exists in any country, combining in a yet happier proportion than the Race-Horse the lightness of the horses of the warmer regions with the strength of the ancient races of Europe. If we compare the Hunter in his conformation with the Race-Horse, we shall find him inferior in the characters which indicate the power of speed, but far excelling in those which show the adaptation of the animal to useful services. The vast number of these beautiful horses that are found in this country, not merely employed for the chase, but for the saddle, for military chargers, and for chariots and the lighter carriages with which the country abounds, excite the admiration of strangers, greatly more even than the exciting spectacle of the race-course, and manifest in a more obvious manner the perfection to which the cultivation of the Horse has been carried amongst us. It is a truth, that it is this class of horses which is principally sought for by foreign agents, and that for many years past a great and silent drain of them has been taking place to other countries. Foreign dealers and agents are constantly looking out for superior mares and stallions of this class. We hear of the thoroughbred horses that are carried off, but we are unsuspicious of the vast extent to which, under the unnoticed operations of common trade, the exportation of the most useful horses of all is continually taking place. It is certain that it is to this cause that is to be ascribed the difficulty which is everywhere complained of, in procuring good horses for the saddle. The mares on which the breed depends being removed, the market ceases to be supplied as before. No remedy exists for this evil but that increase of the price which shall render the home market more profitable than the foreign, and the exciting of public attention to the value and importance of the class of horses, which we are suffering to escape from us. We may be assured, that the race of true Hunters, if materially diminished or injured in their characters, will not without great difficulty be restored. A simple cross between a thoroughbred horse and a common mare may produce a good individual, but this is very different from that progressive change by which a class of characters can be communicated and rendered permanent, and a true breed formed. It may be believed that, while Britain preserves the opulence of a great commercial and manufacturing country, the wealth of the inhabitants will give encouragement to the production of the best horses, as well as of every thing else which the wants of such a community call for; but horses with the properties required will not start up at the command even of wealth, and we must take the means to preserve the properties which ages of diligent cultivation have communicated to our horses, if we design to preserve them in the most perfect state. While horsemanship is pursued amongst us, as a pleasing and exhilarating exercise, and while the superior class of saddle-horses is in request for the luxury of the lighter equipages, it may be believed that there will always exist a great demand for the races of horses combining strength, action, and speed. But it is for the Hunting-field that a large part of the supply will be required, and therefore it is to be desired that this elegant, manly, and popular amusement should be so conducted as to aid in the maintenance and improvement of that fine race of horses which is rendered subservient to it.

The practice of the modern Hunting-field differs essentially from the methods of pursuing game adopted in former times in this country, or in others where the larger beasts of chase abound. The dogs employed in the modern chase are a variety of a race distinguished from the most ancient times by following their prey by the scent, hunting in concert, and employing the voice in the manner of certain wild dogs, for the purpose of cheering their fellows or terrifying their victims. The race of dogs is divided into numerous varieties, as the Blood-hound, so named from its being erroneously supposed to follow its victim by the track of blood; the Stag-hound, from its being employed to follow the footsteps of deer; the Harrier, the Beagle, and others of smaller size, used for the chase of the lesser game. All the varieties of this race are distinguished by the great expansion of the nasal organ, and the exquisite sense of smell with which they are endowed. They are able to follow the track of their prey by the odour left on the earth, and on the plants with which it is covered. They can distinguish the different kinds of game by their effluvia, and can be readily taught by discipline to pursue any one kind of quarry and disregard the others. In every age we read of this race of dogs, and of the diversion of their natural instincts to the uses of the hunter. In our own country they were employed from the earliest times in the pursuit of the wolves, deer, and other wild animals with which the woods and wastes of the country were filled. But, besides the races of dogs which hunted by the scent, our ancestors, in the manner of all the earlier nations of Europe, employed different varieties of a race of dogs which hunted solely by the eye, and ran down their prey by swiftness of foot. Of this race is the great Deer-hound, of which remnants only now exist in this country, and the fleet and graceful modern Grey-hound. This race of dogs was almost always employed, in conjunction with the true hound, in the ancient hunting of this country. In the practice of the modern chase, the swift races of dogs, the Celeres of former writers, are never employed along with the true hounds to run down the game.

Of the kinds of hunting pursued in this country, that of the Stag, Cervus elephas, came to be regarded as the most noble, and was eagerly practised when other kinds of game had become scarce. During the reigns of the Norman Kings, the preservation of

this species of deer, and of the roebuck, likewise an indigenous species, was especially aimed at in those inhuman forest-laws which so long dishonoured the country. During the reigns of the STUART Princes, the chase of the stag still continued to be the favoured pursuit of the privileged classes, but the numbers of the animals became gradually thinned, so that, by the beginning of last century, they were scarcely to be found in the wild state. In the Highlands of Scotland they are yet in considerable numbers, but in a country so wild, dangerous, and rocky, that they cannot be pursued by horses and dogs. The hounds used for the chase of the stag were large, strong, exquisitely sensitive, but slow as compared with the breeds now cultivated. Their baying was peculiarly deep and musical, resembling that of the ancient Blood-hound. When stags could no longer be found in their wild state in the woods, it became common to rear them in enclosures, and turn them out to be pursued: but this destroyed the very idea of hunting; and though the sport was pursued by GEORGE III., and till our own times, it has lost all favour amongst sportsmen of the present day, who are in the habit of ridiculing it as "calf-hunting." The ridicule is in no degree merited with reference to the hunting of the stag in his natural state, which is undoubtedly the most noble and animating of all the kinds of chase in which the hound is employed. With the decline of the hunting of the deer, that of the Hare, which had been a very ancient sport, gained ground. The hounds employed in this amusement were early termed Harriers and Beagles, the latter a race of dogs with sharp but musical voices. Considerable numbers of harriers are still maintained in different parts of the country, but a greatly swifter race of dogs being employed, the sport has wholly changed its character. The runs are more rapid and short, with some loss assuredly of that pleasure which was derived from observing the exquisite powers of the pack, and the artifices of the prey. The substitution of the Fox for the Hare is comparatively recent. Although foxes were followed and killed by various means, with the same feelings as other noxious animals were destroyed, it seems only to have been about the beginning of last century that they began to be regularly pursued by hounds as a source of amusement. It was soon found, however, that this animal, after the destruction of the deer and other game of the woods, was really the best suited of all others for the sports of the field, possessing strength, hardihood, and speed, sufficient to call forth the utmost powers of the pack. With the increasing improvement of the country, too, and the diminution of the larger forests, the haunts of the animals became more known, so that they could be readily found, while the multiplication of artificial coverts of gorse and brushwood, with the increase of the lesser game which served them as food, afforded the means of increasing their numbers in almost any degree required. The dogs that were first used for this kind of chase, were a race entirely resembling the ancient Stag-hounds; but by the effects of selection and breeding, a variety of somewhat smaller size was formed, better adapted to this kind of chase. They were still larger than the modern Fox-hounds, but more nicely sensitive of smell, and more tenacious of the footsteps of their game.

This new kind of sport continued to be received with increasing favour during all the reign of GEORGE III., and by degrees underwent great changes. The breed of dogs was rendered more compact and symmetrical in their form, and consequently more agile and fleet; and a lighter kind of horses was employed. The general practice of the Hunting-field, too, was insensibly changed. Under the older system, the hounds were taken out by break of day, and the fox, after having returned from pursuing his prey during the night, was tracked to his cover by the scent of his returning footsteps, or, in technical language, the "drag;" so that there were in truth two chases, the one the tracking of the animal to his cover, and the other after he was "unkennelled," corresponding with the modern fox-chase. The hounds are now at once taken to the cover, and in place of the temperate riding of former times, the sportsmen press more closely on the pack, which may justify the modern phraseology of riding to hounds, in place of the former more correct expression of riding after or following them. The chase has now become a short and fiery gallop, and few horsemen out of a numerous field can keep pace with the pack when at speed. It is now become common to have relays of horses, so that the sportsman may mount a fresh Hunter when his first one is exhausted. In every part of England are to be seen packs, brought to the utmost perfection with respect to equipment, and the breeding and discipline of the hounds; but Leicestershire has acquired a sort of pre-eminence, from the number and excellence of the packs maintained in it, the nature of the country, consisting chiefly of meadows of old turf, and from the great resort of opulent sportsmen. It is here, and especially at the little town of Melton-Mowbray, that the stranger will best learn the nature of the sport as it is now pursued. The times and places of meeting of the various packs having been advertised, the preparation begins by the various horses being sent off to cover, the principal sportsmen sending two horses, each mounted by a groom, one of which is to serve as a relay. In an hour or more the sportsmen themselves are to be seen in motion, some riding to cover on their hacks, as they are termed, but which, in truth, are horses of the first class, whilst others are to be seen rolling rapidly along in their gay and glittering equipages; a singular contrast with the same sport in times when the good squire, roused from his slumbers long before the break of day, sped his weary way through mist, darkness, and mud, to the place of meeting. The hour of assembling is usually eleven, when a field of from one to two hundred sportsmen is to be seen congregated from all the neighbouring country near the place of throwing off. The whole has an air of business and system, surprising to those who have been used to the pomp and clamour of the chase of other

THE HUNTER.

countries. There is assembled a concourse of persons of every rank from the farmer to the peer, all with the air and feeling of independence, mounted on highly-conditioned horses, and deeply intent on the dangerous and exciting game to be played. The Fox is almost certainly found in the first cover, or in one of the neighbouring ones, so that what are called blank days very rarely occur. When the fox breaks cover, followed by the leading hounds, the eager crowd of horsemen is all in motion and at speed. But it were useless to describe a scene familiar to so many, and which must be seen to be at all understood. It suffices to observe, that the chase is a rapid gallop, interrupted by the most formidable obstacles of fence, gate, stile, and brook, which a completely enclosed country can present. The courage and bottom of the horses, and the boldness and address of the riders, are deserving of great admiration; and it may be safely said, that there is no school of horsemanship in Europe which can at all be compared with an English Hunting-field. But perfect as the general system has been rendered, it is to be feared that refinement has been carried to its limits. The rapidity of the pace has been carried to a degree that assimilates the sport to a race, animating certainly to the highest degree, but differing in its character, and in the feelings which it excites, from the legitimate exercise of the Hunting-field. The effect begins to be perceived in the character of the horses employed, which, in the great hunting countries, are manifestly tending to a lighter form than ought to characterise the genuine Hunter. Nay, it is now very common for sportsmen to use horses entirely thoroughbred; and if such horses are sufficiently trained for riding, it cannot be denied that they possess properties which fit them well for the short and violent exercise which they are required to undergo. The fact, however, proves, that the increased speed and diminished length of the chase have been carried even beyond the bounds which a just consideration of the nature of the pursuit should assign to it.

An argument employed in justification of the excessive speed of the modern chase is, that it has become necessary, in order that the hounds may escape from the pressure of the crowd of horsemen, who are now more numerous than in former times. The reason can scarcely be held to be sufficient. The present mode of riding to hounds is merely a fashion, introduced in the latter part of the last century, and may, like every fashion, yield to the influence of the taste and judgment of those whose situation enables them to set an example. The modern Fox-hound could easily be bred back a little to the older standard of the Blood-hound, without any impairing of his essential properties, while a more subdued system of riding would probably afford a pleasure more accordant with the nature of the pursuit. But however this be, a relaxation of the speed of the chase would certainly tend to preserve the distinctive character of that unrivalled breed of horses, which is rendered subservient to this fine and animating exercise. The generous sportsman may look to something beyond the triumph of his own skill in excelling a field of numerous comrades. He may look to the Hunting-field as an arena in which all may find delight, and which collects together individuals of every degree in a common pursuit. The sport is truly British, and has as yet taken root in no foreign land. It is a pursuit which is in accordance with the gay hilarity of early life, which binds the youth of the country to the halls of their country homes, and which provides a substitute for those less manly amusements which in other countries become necessary to fill up the intervals of more serious occupation.

Sam: Gist Gist Bloomington Grange

THE BREEDS

OF THE

DOMESTIC ANIMALS

OF THE

BRITISH ISLANDS

DESCRIBED BY

DAVID LOW, Esq. F.R.S.E.

PROFESSOR OF AGRICULTURE IN THE UNIVERSITY OF EDINBURGH;

MEMBER OF THE ROYAL ACADEMY OF AGRICULTURE OF SWEDEN; AND OF THE ROYAL ECONOMICAL SOCIETY OF SAXONY; HONORARY AND CORRESPONDING MEMBER OF THE ECONOMICAL SOCIETY OF LEIPSIG; CORRESPONDING MEMBER OF THE CONSEIL ROYAL D'AGRICULTURE DE FRANCE, OF THE SOCIÉTÉ ROYALE ET CENTRALE, &c.

AND

ILLUSTRATED WITH PLATES,

FROM DRAWINGS BY MR W. NICHOLSON, R. S. A., REDUCED FROM A SERIES OF PORTRAITS FROM LIFE, EXECUTED FOR THE AGRICULTURAL MUSEUM OF THE UNIVERSITY OF EDINBURGH, BY MR W. SHIELS, R. S. A.

IN TWO VOLUMES.

VOLUME I.

THE HORSE AND THE OX.

LONDON: LONGMAN, ORME, BROWN, GREEN, AND LONGMANS.

MDCCCXLII.

I. THE HORSE.—*Continued.*

the Islands of the Hebrides; of Wales, of Dartmoor, Exmoor, Hampshire, and the older Forests.—The Pack-Horses of England, and Galloways of the border counties.—Varieties of British Horses —produced, 1*st*, By differences in the native races; and, 2*dly*, By more or less intermixture of foreign blood.—Classes of British Horses considered with relation to their services and uses, from the Race-horse and Hunter down to the races in which no intermixture, or a slight one, of foreign blood exists.—Tendency to a lighter form of the Horses of the country.—Causes and effects of this change.—The old English Coach-horse—the modern Coach-horse—the Road-horse—the Hackney—and the Cavalry Horse.—Advantages of a more light and graceful form of the Horse, and the disadvantages, under certain circumstances, of the course of breeding pursued.—Causes of the errors in the principle and practice of breeding as applied to the common Horses of the country, and the modes of obviating their effects.—Importance of the cultivation of the Horse as a branch of national industry, . . . Pages 29–38

5.—THE OLD ENGLISH BLACK HORSE.

The Old English Black Horse; its similarity to the race of the same colour existing in the Lower Rhine, the Meuse, and the Scheldt.—The race naturalized in England from the Humber to the Cam, and extending westward through the midland counties to the Severn; its great physical power, but deficiency in speed and action.—Improvement of the breed by the introduction of the same race from Holland and Flanders.—Description of the modern Black Horse; its useful properties and defects; its extensive employment in the central and southern counties for waggons and heavy carriages.—The Dray-horses of London.—Improvements of which the breed is susceptible, ... 39–40

6.—THE CLEVELAND BAY.

Notice of the Horses of England north of the Humber, corresponding in character with those of the Danish dominions of Holstein, Sleswick, and Jutland.—Their smaller bulk of body as compared with the Black Horse, and their variation in aspect, colour, and form.—Formation of the Cleveland Bay in the North Riding of Yorkshire, and its extension to the great breeding districts of the north of England.—The Cleveland Bay a true breed, exhibiting a similarity of characters in the individuals; its adaptation to chariots and the lighter carriages; the great demand which exists for it in London and other opulent cities, and the large exportation of it to other countries.—The crossing of it by Horses of superior breeding, and production of Horses of a yet lighter standard, . 41–42

7.—THE SUFFOLK PUNCH.

Its sorrel colour, connecting it with a race of Horses largely diffused in Europe; its affinity in characters with the Horses of Normandy; its form and properties; the estimation in which it is held for the purposes of labour, and the trueness with which it performs the required work.—System of crossing pursued with the larger Horses of Durham and Yorkshire.—Superiority of the Breed over the Black Horse for activity and endurance, and the demand which has arisen for it for the purposes of the dray.—Notice of the larger Horses of Wales, and of the mixed breeds of other parts of the country, 43–44

8.—THE CLYDESDALE BREED.

Its derivation from the western parts of Scotland, and chiefly from the vale of Clyde and the neighbouring districts,—its connection with the Black Horse of Holland and the Netherlands,—its colour, form, and properties,—its superiority to the Black Horse in action, but its less weighty, compact, and muscular form.—Its freedom from vice, and adaptation to the labours of draught and the field.—Its diffusion, and the further attention required on the part of the breeders, ... 45–46

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairland.

THE CONNAMARA HORSE.

Gelding, 13½ hands high, from the County of Galway; the property of Mr. John Bindon Scott, of Cahircon.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published December 1840 by Longman, Orme, Brown, Green & Longmans, Paternoster Row, London.

THE CONNAMARA HORSE.

PLATE IV.

GELDING, 13½ hands high, from the County of Galway, the property of JOHN BINDON SCOTT, Esq. of Cahircon.

The Horses of Spain have been referred to as having contributed to form the mixed races of the British Islands; but it is not generally known that a race of Horses of Spanish descent, nearly if not altogether pure, exists in this country in considerable numbers. They inhabit the Connamara district of the county of Galway. The tradition is, that, from the wreck of some ships of the Spanish Armada on the western coast of Ireland, in the year 1588, several horses and mares were saved, which continued to breed in the rugged and desolate country to which they were thus brought. But the aid of tradition is in no degree necessary to prove the origin of these horses, since all their characters are essentially Spanish. They are from twelve to fourteen hands high, generally of the prevailing chestnut colour of the Andalusian horses, delicate in their limbs, and possessed of the form of head characteristic of the Spanish race. They are suffered to run wild and neglected in the country of mixed rock and bog which they inhabit, and where they are to be seen galloping in troops amongst the rugged rocks of limestone of which the country consists. When they are to be captured, which is usually when they are three or four years old, they are driven into the bogs and haltered. They are hardy, active, sure-footed in a remarkable degree, and retain the peculiar amble of the Spanish Jennet. Any selection may be made from the wild troops, after being hunted into the bogs; and individuals are obtained at a trifling expense.

It must be regarded as remarkable that these horses should retain the characters of their race for so long a period, in a country so different from that whence they are derived. They have merely become smaller than the original race, are somewhat rounder in the croup, and are covered in their natural state with shaggy hair, the necessary effect of a climate the most humid in Europe. From mere neglect of the selection of the parents in breeding, many of these little horses are extremely ugly, yet still conforming to the original type. It would be highly desirable that the gentlemen of Ireland should direct attention to this remarkable race, which would supply a class of horses, of the Galloway size, now much wanted. By importing some of the best Andalusian stallions, a wonderful change could be effected in the breed, which would thus be rendered of economical importance to the district which produces it.

THE HORSE.

CLASSES OF BRITISH HORSES.

When JULIUS CÆSAR landed amongst the Belgæ on the shores of Kent, about fifty-four years before our common era, he found the natives possessed of Horses, which tney used for cavalry, or attached to chariots of war after the manner of the Assyrians, the Persians, and other people of the East in the first ages, of the Egyptians in the remotest times, and of the Greeks in the era termed Heroic. The early use of the Horse, in a manner thus artificial, by nations so remote from one another as the inhabitants of Celtic Britain and the first civilized communities of the East, may be regarded as one of the many proofs derived from history, sacred and profane, from language, and from similarity of customs, religious and social, of the pristine relation between the early settlers of Europe and the people nearer to the great centre of the human family in Asia. The most simple and natural manner of reducing the Horse to subjection is by making him bear the burden of his rider; and it may be assumed that this was the method of domestication which preceded that of attaching him to an armed equipage, the construction of which infers a certain advancement in the useful arts. It can scarcely be believed that the scattered tribes which peopled Europe during the first periods of colonization had themselves devised a method of using the Horse so little suited to their wants, and to the countries of marsh, forest, and mountain, over which they were spread. It is more consonant with reasonable probability to suppose, that the first settlers of Europe brought with them the practice from the countries from which they were themselves derived.

With respect to the origin of the early inhabitants of Western Europe, the most reasonable supposition is, that they were an offset from a great family of mankind established in Asia, and that they had spread themselves in the manner of colonists westward; but that, at other unknown and posterior epochs, when population had extended northward into the regions beyond the Caucasus, known generally and vaguely to the ancients as Scythia and Sarmatia, other settlers migrated westward, giving origin to the Scandinavian, the modern German, and other nations, commonly, but incorrectly, comprehended under the general term Teutonic or Gothic. These migrations, like wave succeeding wave, followed one after another slowly westward; and the latter settlers, pressing upon the former, either dispossessed them, or became mingled with them. But whatever be the particular history of these pristine movements of the first families of mankind, two races of men at least were found in the course of ages inhabiting Western Europe, distinguished from one another by physiological characters, by speech, by social habits, and religious observances; the first commonly termed Celtæ, the latter usually designated Teutones or Gothi; the one apparently derived from the countries south of the line of the Caucasus, the other from the ruder regions extending northward. The Celtæ, known to ancient writers as Cynetæ, Cymri, Iberi, &c., were usually found in patriarchal communities of tribes or clans, generally disunited and at war with one another, or only combined for the purpose of aggression or mutual defence. The people were submissive to authority, and had an order of priests of great influence and power, who often taught the immortality and transmigration of the soul, worshipped in groves, erected altars and sacred enclosures of unhewn stone, of which innumerable remains are yet spread over Europe, paid, like the Persian Magi, a reverence to fire, to the heavenly bodies, and to certain plants, and adopted the horrid rite of human sacrifices as practised by the Phœnicians and other Syrians. On the other hand, the ultra-Caucasian, Scythian or Gothic, colonists formed larger communities, under a system rather feudal than patriarchal. The people, although influenced by a wild superstition, were tenacious of individual rights, like the free Scythians in every age. They had horses whose flesh they sometimes used as food, and which they offered up in sacrifices to their divinities, but which, so far as is known, they never attached to chariots of war like the true Celtæ.

The Celtæ, continually pressed upon and driven westward, were found, at the period of the Roman conquests, in Spain, Gaul, part of Germany, and the Islands of Britain; and the latter appear to have been in their exclusive possession at the time of the Roman invasion. Some indeed have supposed, that even at this last period a nation of Gothic origin had found its way to Britain, and occupied, under the name of Belgæ, the part of the country where CÆSAR landed. But the Belgæ were themselves a Celtic people, as the testimony of STRABO proves; and the description which CÆSAR himself gives of them, shows that they were a race differing in no essential respects from the other Britons. It was not for many ages afterwards, during the decline of the Roman empire, that the really Gothic nations found their way in numbers into Britain, and, reducing the greater part of it to subjection, imposed upon it their customs, laws, and language. At the time of our Saviour, and long afterwards, the inhabitants of these Islands were essentially Celtic; and that the same race had inhabited the country from the earliest times, appears from innumerable remains of ancient forts, sepulchral tumuli and cairns, rude altars, and circles of stones and other monuments, which can be referred to no other race but the Celtic; and from the names of mountains, rivers, promontories, and other natural objects, which to this hour retain the designations imposed upon them by the Celtic aborigines.

CLASSES OF BRITISH HORSES.

When these Islands then became the prey of Roman ambition, the horses of the country were those of the pristine settlers of Western Europe, either brought in a state of domestication from the East, or derived from the wild races existing in the wastes of Europe. That they were in great numbers we learn from the Roman writers. CÆSAR continually refers to the daring cavalry and destructive chariots by which he was opposed. At his landing, the Britons, spurring their horses into the sea, assailed his legions ere they could reach the shore. In his first expedition he merely saw the country which he came to subdue. In his second, he followed the Britons into the interior, and, fording the Thames, he routed on its banks their great leader CASSIVELAUNUS, who, he tells us, having lost all hopes of success by battle, disbanded the greatest part of his forces, and retained about 4000 chariots, with which he harassed the Romans as occasion offered. Subsequent writers speak of the horsemen and charioteers of the Celtic Britons. TACITUS, in describing the last great battle which the Caledonii fought with AGRICOLA near the passes of the Grampians, states that their first line was in the plain, and the next on the sloping ascent of the mountains, and that the space between the armies was filled with the cavalry and charioteers of the Britons rushing to and fro with loud noise. They rushed, he tells us, in their armed chariots at full speed, and mixed in battle with the infantry. Their first impression struck terror, but their career was soon checked by the thick ranks of their enemies and by the inequalities of the ground, and, crowding upon one another, they were thrown into disorder. Chariots without a guide, and horses without a rider, broke away in wild confusion and trampled upon the ranks. The horses of the country, it is certain, must have been numerous when they formed the strength of an army in a country so wild and mountainous.

Whatever was the character of these early Horses with respect to size, strength, and other properties, it is probable that for many ages they underwent little change. Previous to the fall of the Roman Empire, northern pirates had ravaged the coasts of Britain, and fixed themselves in some of the remoter Islands. But it was not till the fifth century that Gothic hordes began those regular invasions which terminated in the subjection of nearly all the Island, and the imposition of a new language and new customs on the people. They seem first to have landed in numbers on the shores of the Firth of Forth, although history usually refers their first permanent settlement to an invitation of the Romanized Britains of the south for protection from the ravages of the northern tribes. However this be, it is certain that about the year 449, when the falling Empire could no longer protect the distant provinces, the Saxons, a Gothic people from the countries of the Elbe, landed in South Britain, and being followed by successive swarms of Saxons, Jutes, and Angles, their countrymen, continually disembarking on the country from the Forth to the shores of Kent, established a dominion which, by creating a new nation, may be said to have affected the whole condition of societies throughout the civilized world.

The supremacy of the Saxons in England lasted for more than 600 years, when it was overthrown by the Normans, a warlike people of Scandinavian lineage. Scotland during this period had continued essentially Celtic, with the exception of the kingdom of the Lothians, extending from the Forth to the Tweed, which had been early colonized by Saxons; and with the exception at length of a portion of the extreme north colonized by Scandinavians. The Celtic inhabitants of North Britain were known to the Romans as Caledonii and Picti; and in the third century, in the reign of DIOCLESIAN, we first hear of another people, likewise Celtic, who were to give their name to the whole of North Britain. These were the Sceite or Scots, the Scoti and *Scoticæ gentes* of the Roman writers, who, landing from the north-east of Ireland on the nearest coasts, gradually extended their power. In the beginning of the sixth century they had occupied the Peninsula of Caentir or Cantire, and they gradually advanced northward and eastward until about the year 843, when they had acquired the ascendency over nearly all the native tribes, giving that name to the whole of North Britain, which it will for ever retain.

In the year of our Lord 1066, that is, 605 years after the first settlement of Saxons in England, the dominion of the Anglo-Saxon princes was overthrown by an army of Normans. But by this time a new race of men had been formed, of mixed lineage, but now possessed of a common language, and moulded to a common standard of national character. Scotland was never subjected to the Normans; but in thirty-one years after the Norman Conquest, a race of Scoto-Saxon princes succeeded to the Scottish crown, and from that time the Saxon speech and customs rapidly extended over all the Lowlands of Scotland.

The Saxons, though a Gothic nation, were little given to the multiplying of Horses; and it does not appear that they ever became distinguished as horsemen in their new country. It cannot be supposed that they transported many horses to a country already possessed of them, in the small and dangerous vessels with which they navigated the northern seas; and therefore it may be assumed that, up to the period of the Norman Conquest in England, and for many centuries afterwards in Scotland, the Horses of the country remained essentially the same as when the Romans first encountered them in the battle-chariots of the Celtæ.

The Normans were a mixed race of military adventurers from the north of Europe, ardently devoted to the Horse as an instrument of their wars and silvan exercises. WILLIAM I. transported with him a numerous cavalry, to which he mainly owed

the first victory which enabled him to give law to the country, and his rude successors and feudatories retained in after ages the Norman tastes in what regarded the Horse. But the Normans, although they conquered the country, did not, like the Saxons, colonize it. They forced upon it their laws and polity, but were too few in numbers to alter essentially the physiological characters, the language, or, for many ages, the social habits of the people. Nevertheless, with the conquest of the Normans began a change in the Horses of England. The communication with France, the Low Countries, and the neighbouring parts of Germany, being opened, horses superior to those of the ancient Britons and Anglo-Saxons could be obtained. Then, too, was the age of chivalry, of heavy-armed knights, and men-at-arms, for whom horses of good strength and size were required. The great Black Horse of Flanders and the plains of Germany was in especial request; and our earlier records show that the Norman princes largely resorted to these countries for supplying their studs and armies. The Crusades, too, conveyed a knowledge of those gay and elegant steeds which happier climes and distant lands produced; and by degrees horses from Spain and Italy, Barbary and the countries of the Levant, found their way to the land of the Anglo-Normans. This kind of importation, however, was long too slight to affect the general character of the Horses of the country, and ages elapsed before the coarse and sturdy races of England tended to the lighter form of those of the South and East. The employment of fusees in war, and the gradual disuse of heavy armour, led at length to a more general preference of horses of lighter form and easy action. HENRY VIII. was the last of the English princes who cultivated to any extent the usages of chivalry. With the reign of ELIZABETH the passion even for the mimic war of jousts and tournaments declined, and it became nearly extinct during the reign of her successor. JAMES I. gave a new current to the popular amusements, by the establishment of horse-races, which banished the sports of the tilting-yard, and produced a surprising change in the character of the Horses of the country. A class of horses being especially devoted to the Course, the finer animals of the countries of the Mediterranean were obtained, and mingled with the English blood; and thus an artificial race was produced adapted to the purposes of speed. Spain and Italy had been at first resorted to, but afterwards Morocco and the other countries of the Barbs, and at length the remoter deserts of Syria and Arabia, whence the most beautiful of the Eastern Horses have been derived. The system of the Course first methodized by JAMES was not entirely perfected till the reign of his grandson CHARLES II., since which time it has been continually pursued and extended. The full account of these changes has been already given in the history of the English Race-Horse. The effect has been, that a breed of horses has been formed of peculiar lineage and characters, and been mingled in blood with the native varieties in every degree. In this manner the property of Blood, as it is technically termed, has been communicated to the inferior races, and varieties have been multiplied without limits. Not only does there exist the diversity of what may be termed natural breeds, but those further differences produced by the greater or less degree of breeding communicated to individuals. Many remain with little or no admixture of the blood of the Race-Horse, and so may be regarded as native breeds or families; but others are so mixed with the superior Horses, or with one another, that they cannot be treated of as Breeds, but must be regarded as Classes suited to particular uses.

Of the races which have no mixture of the blood of the Race-Horse, one inhabits the islands of Zetland. These are the least in size of any of the varieties produced in the British Islands. They resemble the ponies of Norway, Sweden, and Iceland, but they exhibit likewise traces of mixture which may be derived partly from ancient and partly from modern times. It is not certainly known whether these desolate islands were inhabited at all, when first occupied by Scandinavian plunderers; but being taken possession of, they long continued attached to the Crown of Norway, and it was not until the 15th century that they became subject to the Scoto-Saxon Princes. Their first and most intimate connexion having been with Norway, it is reasonable to suppose that their horses were derived from that country; or that, if an anterior race existed in the country, it was mixed in blood with that of the Northmen. The more recent intermixture may be supposed to have been with the horses of the adjoining islands of Orkney, and in later times with those of Scotland proper. But tradition refers to a further intermixture with the horses of Spain, when the terrible Armada of PHILIP pursued its disastrous flight round the extreme north of Scotland. Many of the huge galleons and lesser vessels of that ill-fated expedition were stranded on the Zetland shores, and others found refuge in the creeks and natural bays of the country. It is further known that the Spanish ships were largely supplied with horses, some of which, as at Conamara in the west of Ireland, have left their traces to the present day. It may, therefore, be well believed that numbers of these Spanish horses were left behind, which could not fail to impress their characters on those of the Islands, probably few in number, and held in little esteem. But this supposition is almost confirmed by the aspect and properties of the existing race, many of which are extremely handsome, are fleeter in proportion to their size than any of the other ponies of Scotland, and tend very generally to the brown or bay colour, characteristic of the horses of southern climates.

But whatever be the origin or degree of mixture with other races of the horses of Zetland, their diminutive size marks the influence of a rigorous climate and scanty nourishment. Their ordinary height is about 36 inches, or 9 hands; many of them do

CLASSES OF BRITISH HORSES.

not exceed 7½ hands or 30 inches; and some fall even below the latter standard. The figure in the plate (Plate VIII), in which the two animals represented are of their relative size, will convey a better idea than any description can give, of the diminutive stature to which the nature of the country has reduced these horses. The pony here represented belongs to the Earl of HOPETOUN. It was ridden by one of his sons in France, where it excited as much curiosity as the rarest wild beast.

These little horses in their native islands are left almost in the state of nature until they are caught for use. They have no shelter from the continued storms of tempestuous seas beyond what the crags, ravines, and sides of hills afford; and they scarce ever receive any food but what they can collect on the sedgy bogs, the heathy hills, and barren shores of the country. They are thickly covered with a coat of long hair, which becomes felted upon them like a garment during the inclement season. Their colour is generally bay or brown, sometimes mixed with white, and often it is of a dullish-black, and sometimes piebald. They are sagacious and cunning, stealing into the patches of growing corn when opportunity offers. They are gentle, and easily reduced to obedience, and when domesticated and kindly treated, exhibit almost as much sagacity as a dog. They will enter an apartment and receive crumbs from the table, and stretch themselves on the floor. They have sometimes been put in hampers, and thus carried to a distance. They are in great request for equestrian exhibitions, and are more easily trained to the feats required than any other kind of horses. Thus they may be made to leap through hoops, and in passing a bar, to stoop beneath it, or leap over, as directed. The chief demand for them is for saddle-horses for children. They are the safest animals that can be used for this purpose; and as the demand is considerable, and would be much greater were the supply more extended, there is good reason for directing attention to the rearing of them, and preserving those peculiarities of size and form which give them their value.

The Orkney Islands possess likewise their breeds of ponies; but they are of more mixed descent, and of larger size and coarser form than those of Zetland. These islands, the Orc of the ancient British, were discovered by the Roman fleet, which, by command of AGRICOLA, sailed round the Island. They early formed the haunt of northern rovers; and, towards the end of the 9th century, were reduced to subjection by HAROLD HARFAGRE, the Norwegian, who established a dynasty of Earls, who reduced Caithness, and parts of Sutherland, Ross, and Cromarty, and made themselves be felt for ages as the terror of the neighbouring coasts. In the year 1468, the Orkney, together with the Zetland Islands, were given in pledge to King JAMES III. as the dowry of his wife MARGARET, the daughter of CHRISTIAN King of Denmark; and in 1472, they were annexed to the Crown of Scotland by an act of the Scottish Parliament. The early conquerors of these islands were pirates; and fighting on foot, made little use of the Horse in battle; so that the horses of the country were probably few in numbers. Those which it now possesses are small, although, in the progress of cultivation, others of a larger size have been introduced. They are mostly of a dull black colour marked with white, or dun marked with the dark streak along the spine, characteristic of a widely diffused family. A few are white, and some piebald, which has been ascribed to the wreck of a number of white German stallions, which took place in the latter part of last century.

The Hæbudes of the Roman geographers, by an early error of transcription, changed into Hebrides, consist of two groups of islands; the first, the Outer Hebrides, consisting of Lewis, Harris, and others, lying out in the western ocean, and extending in a long chain of about 140 miles; the second, the Inner Hebrides, lying nearer the coast, and stretching from Bute in the Firth of Clyde to Skye on the coast of Ross. These numerous and gloomy islands were, beyond a doubt, possessed by the same Celtic race which peopled the other parts of Britain, as is attested by the existing names of places and natural objects, which have survived many bloody changes, and by the like rude monuments as extend from Cornwall to the ancient Orc,—from Wilts to the mountains of Kerry. But the same ferocious seamen who ravaged the northern islands, formed settlements in these. In the Outer Hebrides, Scandinavian names have generally supplanted the Gaelic, and the language of the people is mixed with the Frisian and Norse. The Inner Hebrides were not so long and wholly subject to these strangers, and the Gaelic names accordingly prevail over the Scandinavian. The conquerors of these islands cared for the sea, and made little use of horses. Nevertheless, all the islands of any magnitude produce horses in considerable numbers. Those of the Outer Hebrides are small, round-shouldered, muscular, and thickly clad with long hair. Those of the Inner Hebrides are usually of somewhat larger stature. The best of them used to be produced in Mull, Barra, and Islay; and here, too, tradition refers to changes produced by the horses of the wrecked Armada, a part of which having rounded the North Cape, found its way to these dangerous coasts. It is abundantly probable that here, as elsewhere, some of the stranger horses were left behind; but no such traces exist in the present horses of the country as can enable us to refer them to Spanish lineage. They are mostly of a brownish-black colour, some brown, bay, or dun, some of a dull cream colour, and some grey. They have the common characters of round shoulders, stout limbs, and short upright pasterns. They are hardy in a high degree, but they have little speed. They have lost much of the reputation which they once possessed. Being employed in carrying loads when young, they are generally bent in the back, and otherwise thrown out of shape.

CLASSES OF BRITISH HORSES.

No care is bestowed in selection, and the best of them being picked up by dealers, those that remain suffer continued deterioration, so that it is now difficult to obtain a tolerable pony in places where a few years ago they were numerous. It will scarcely be credited, that numbers of them have been recently bought by dealers to be fattened and sold as Irish beef. Yet a demand for the better class of them exists, sufficient to induce attention to the breeding of them, and they would become a valuable production of the country, were the most ordinary care bestowed on their improvement. But it is painful to state, that the condition of the greater part of these lonely islands is far from being one of advancement, notwithstanding that the extended communication by steam is eminently calculated to promote their industry and prosperity. The proprietors are generally non-resident; the farms, as in Ireland, are divided into miserable possessions, at excessive rents; and the mass of the people accordingly is in such a state of penury as to preclude a beneficial employment of their industry.

The same kind of horses extends to the neighbouring parts of Argyleshire, and, with some change of characters, dependent on the greater elevation and productiveness of the heathy pastures, through all the central and northern Highlands. The prevailing colour is a dull brownish-black. They have abundant hair, stout limbs, and short pasterns. They have good feet, and are sure-footed and hardy in the highest degree. They are well suited to climbing mountains, and manifest great sagacity in making their way through swamps and bogs; but they are lazy and slow, and altogether destitute of the fire and mettle distinctive of the Arabs, the Barbs, and other horses of warmer climates. They are carried in considerable numbers to the low country, where they are valued for their power of subsisting on scanty food, and enduring careless treatment.

The mountains of Wales, in like manner, give birth to a race of small horses, adapted to an elevated country of scanty herbage. The Cambro-British necessarily depended for protection on their foot soldiers, and not on their cavalry, and never appear to have been distinguished as horsemen in the mountainous country which they so valiantly defended. From their laws and chronicles we learn some curious details regarding their horses. HYWELDA or HOWELL, surnamed the GOOD, who lived in the tenth century, condescended to legislate on every subject of household and general economy. He fixed the price of all things to be bought and sold within his dominions, from horses to cats. The price of a foal under fourteen days old was to be 4d., of one a year and a day old 48d., and so on. He turned his royal thoughts to the tricks of horse-dealers, a class of persons who seem in every age to have adopted the maxim of never speaking the truth in matters of trade. For every blemish discovered in a horse after sale, one-third of the money was to be returned, except the blemish should be on the ears or tail! The buyer was to have a certain time allowed him to ascertain whether the horse was free from three diseases, namely, three nights for the staggers, three months for the wind, and a year for the glanders. Whoever borrowed a horse and rubbed the hair off, so as to gall the back, was to pay 4d.; if the skin was forced into the flesh 8d.; if the flesh was forced to the bone 16d. No horse was to be used in the plough; but he was to be brought up as a serving horse or palfrey, and his price was then to be 120d. Horses can only be supposed to have been valuable from the smallness of their numbers when such absurdities could have become the laws of even the pettiest province. When the Normans conquered and partitioned Wales, other horses than those of the country could not fail to be introduced. ROGER DE BELLESME, afterwards Earl of Shrewsbury, is said to have brought the Spanish Jennet to his estate of Powisland, to which circumstance has been ascribed the reputation which the horses of that part of Wales once possessed. But whatever changes may have taken place in the ancient horses of Wales, it is plain that many of those which now possess the country are of mixed lineage. In the higher country, indeed, considerable numbers of ponies, frequently termed Merlins, are reared, which must be supposed to be pure with respect to their descent from the pristine race. They are much neglected, but are usually superior to the ponies of the Highlands of Scotland, having better shoulders, finer limbs, and superior action. They tend to the lighter colours of brown or bay, have good feet, and are sure-footed. But the progress of cultivation has caused a class of larger horses, suited for draught, to be reared in all the less elevated districts; which, though useful, hardy, and true to their work, are far inferior in symmetry to the race of the mountains.

In the forest of Dartmoor is reared a race of ponies, of coarse inelegant figures, but hardy, sure-footed, and capable of undergoing extreme drudgery; and in the high lands of Exmoor is a similar race, but of somewhat smaller size. These little horses are thickly covered with long hair, and until caught for use are left nearly wild. They are resolute and cunning, ascending the rocky eminences when pursued, leaping from blocks of rock, or even jumping over their pursuers when hemmed in. The New Forest of Hampshire, which WILLIAM the CONQUEROR converted into a hunting ground, by driving away the wretched inhabitants, and burning all the towns, villages, and churches within a compass of many miles, long produced a race of ponies, of which the remains yet exist. They are ugly, large-headed, and short-necked, but hardy, sure-footed, and capable of bearing careless usage. In like manner, over all the ancient wastes and forests of England, formerly covering the larger part of the surface of the country, were reared varieties of horses, the size and strength of which bore a relation to the quality and abundance of the natural herbage. Sometimes they were of the pony size, falling short of twelve hands high; sometimes they reached fourteen hands, and in rarer

CLASSES OF BRITISH HORSES.

cases fifteen. They were of coarse form, with short hairy limbs, and were capable of much drudgery, but were destitute of elegance, and unsuited for speed. From this class were derived the older Pack-horses, which were used throughout the country before roads were formed, and which, until late in the last century, were the most numerous class of horses employed for draught or riding. They were good drudges, hardy and sure-footed, but wanted action and lightness for the saddle, while, for the purposes of labour, they were inferior to the larger horses now employed. Numbers of this very ordinary kind of horses are yet to be seen in Cornwall and other hilly parts of England. In the high parts of Devonshire they are still employed in carrying loads. They are numerous likewise in Ireland, and in parts of Scotland; and wherever they exist, exhibit that form which the greater part of the horses of these Islands possessed, until mingled in blood with the finer races of Barbary and the East.

A variety of horses, differing from the ordinary pack-horses in their greater lightness and elegance of figure, were termed Galloways. They exceeded the pony size, and were greatly valued for their activity and bottom. They were derived from the countries near the Solway Firth; and an opinion frequently expressed is, that they had been early improved by horses saved from the wreck of the Armada. There is nothing beyond tradition to support this opinion, and it is known that the Horses of Galloway were distinguished long before the age of the Armada. The nature of the country, mountainous, but not heathy and barren, may account for the production of a larger race of ponies, without our resorting to the supposition of foreign descent, just as the same country at the present time produces a peculiar breed of cattle, larger than those of the higher mountains, but smaller than those of the richer plains. Besides, this part of Scotland was a country of forays during the rude border wars of the times, when a more agile race than the ordinary pack-horse was naturally sought for; and all along the borders of the two kingdoms, a class of similar properties existed. Many of the true Galloways of the western counties were handsome, and their general characteristic was activity, and the power of enduring fatigue. In former times this breed was in great demand in England, and the people of the country where they were produced, up to a period not very distant, were noted as horse-dealers. In England the term Galloway came at length to be applied to horses of a particular size, without reference to their origin, and this application of the word is still in use. The term Pony is applied to Horses of twelve hands or less, the term Galloway to those of about fourteen hands. The finer kinds of Galloways have long disappeared in the district which formerly produced them, the farmers having cultivated a race of larger size for the purposes of labour.

Another class of native horses consists of the larger breeds of the plains, distinguished by their size from the smaller varieties of the higher countries, commons, and forests. These horses are merely a larger variety of the Pack-Horse. They have stout limbs, with long hair at the fetlock and on the legs. They are of all colours, with abundant hair, and long bushy manes. They are slow and unapt for rapid motion, but capable of exerting great physical force in the drawing of loads, or bearing of burdens.

From these native horses, all influenced, with respect to size and form, by the nature of the districts in which they have been reproduced, are derived, by amalgamation with one another, and then by the mixture of foreign blood, the endless varieties which are now multiplied throughout the country. Some of these varieties possess such a community of characters, arising from common descent, or long intermixture with one another, that they may be regarded as families or breeds. Such are the ponies of Zetland, of the Highlands of Scotland, and the remoter mountains of Wales; the English Black Horse of the midland counties, the Suffolk Punch, the Clydesdale Breed, and some others. But many more cannot be classified in this manner, and therefore it has become common to arrange the different kinds, not into Breeds founded on common resemblance, but into Classes founded on the uses to which they are applied. Under this kind of arrangement our Horses may be divided into two general classes; first, those employed for the saddle and the lighter wheel carriages, and, secondly, those employed in the heavier labours, commonly called Draught and Cart horses. In the first class are the Race-Horse, the Hunter, the Coach-Horse, and all the varieties used for the saddle, distinguished by the names of Ponies, Galloways, Cobs, Pads, Road-Horses, Hackneys, Military Chargers, &c.; in the second Class are the Cart-Horse, the Waggon-Horse, the Dray-Horse, and others.

The Race-Horse may either be regarded as a Breed, constituted by a common set of characters, or as a Class composed of individuals reared and educated for a particular purpose. This variety, it has been seen, is wholly of mixed lineage, and deviates more from the type proper to the country than any other. The basis was the ancient Horses of the country, which were modified after the Norman Conquest by progressive changes, and at length by a large infusion of the blood of the Horses of Africa and Western Asia. The mixed progeny thus formed being made to breed only with one another, or with the races of the East, to which they were already allied in blood, have assumed the common characters of a family or race. They have delicate skins, with short hair, usually tending to the bright brown or bay, generally characteristic of the Horses of the East, and sometimes to the grey, prevalent likewise amongst the Arabs and Barbs. They are frequently chestnut, which may be regarded as a mixture of the dun or tan colour of some of the races of Northern Europe with the finer brown or bay, and sometimes, though

very rarely, they are of the bright black common to the great Horses of the plains of Germany. They are of medium height, rarely much exceeding fifteen hands. Their form is that which an almost exclusive attention to the property of speed has tended to produce. They have the broad forehead, the brilliant eyes, the delicate muzzle, the expanded nostrils, and the wide throat characteristic of their Eastern progenitors. Their light body is comparatively long, and suited to the extended stride. Their chest is deep, so as to give due space to the lungs, but comparatively narrow, so as not to overload the fore extremities, and throw the limbs too far asunder in the gallop. Their shoulder is oblique, to give freedom of motion to the humerus, and their haunch is long and deep beyond that of any other known race of Horses, indicating the length of those bones of the hinder extremities on which the power of progression essentially depends. Their limbs are long and muscular to the knee and hock, and below flat, tendinous, and delicate, and their pasterns are long and oblique, so as to give elasticity to the limbs. The Stallions of this race afford the means of communicating the property of what is termed Blood to the common races.

The Hunter, so named from the gay and exciting exercise to which he is destined, is rather to be regarded as forming a class than a breed, since different varieties of horses, if they possess sufficient speed and bottom, may be used for the chase. The modern Hunter, like the Race-Horse, is derived from the pre-existing races of the country; but, in place of a direct mixture with the Horses of the East, he has generally had the property of blood communicated to him through the intervention of the Race-Horse. This variety presents a greater diversity of characters than the Race-Horse. The individuals are made to breed less exclusively with their fellows, and a less jealous attention is paid, in the breeding of them, to purity of descent. They do not require the power of rapid progression in the same degree as the Race-Horse, but they demand the possession of properties in which he may be, and often is, greatly deficient; namely, action, and the power of enduring fatigue. Any good saddle-horse may be a hunter, and the Hunter therefore does not form an exclusive caste like the Race-Horse, but a class into which any kind of horse may be admitted which possesses the properties required.

The increased speed of the modern chase, arising from changes in the practice of the hunting-field, tends, as was formerly explained, to produce a great change in the kind of horses devoted to this exercise. The older race of Hunters has been giving place to one of lighter form and higher breeding, and even the Thorough-bred Horse is now employed by numerous sportsmen. But the Thorough-bred Horse, although he may be adapted to the short and fiery gallop of the modern chase, is not possessed of the same combination of useful qualities as the true Hunter. He is admirably fitted for the exercise of the powers of speed for a limited space, but he generally wants the strength and bottom which should characterize an animal suited for long-continued exertion.

The true English Hunter must be regarded as a saddle-horse of the first class, combining, in the proportion required, the strength of the races of Northern Europe with the spirit and fleetness of those of the South and East. Not only are these strong and elegant horses employed in the exercise of the hunting field, but they are used for the ordinary purposes of the saddle, for military chargers, for the lighter wheel-carriages which luxury has multiplied, and even for many of the innumerable public vehicles which the improvement of roads has brought into operation in every part of the kingdom.

From the Race-Horse, which occupies one extremity of the chain, and the Hunter, which, though inferior to him in speed, is superior in useful properties, down to the races in which either no admixture, or a slight one, of foreign blood exists, the varieties of horses used for the saddle, or for the lighter carriages of all kinds, are without definable boundaries. Each individual, indeed, may be said to form a variety, according to the degree of crossing with those of higher breeding. A common mare with a thorough-bred stallion, a hunter, a coach-horse, or any male of an intermediate degree of breeding, will give birth to a different variety in each case, and each of these varieties again will produce another, according to the race or breeding of the male employed. Hence it is that we see in this country horses of such endless variety in size, form, aspect, and properties. In other countries, the horses of a large district usually present a certain similitude, which connects them together as a breed or family. In England, every kind seems to be collected, with no greater resemblance between the individuals than if they were brought from different parts of the globe.

In general, the saddle and carriage horses of this country have been tending, for a period past, to the lighter form characteristic of superior breeding, and many of the older varieties have either become rare or extinct. This change has been proceeding in an accelerated ratio since the commencement of the present century. It may be ascribed to the increasing taste for the lighter and more elegant forms of the Horse; but in an important degree also, to the improvement in the means of internal communication, and a change in the modes of travelling.

Within the last sixty or seventy years, a surprising revolution has taken place in the means of communication throughout the British Islands, by the extension and improved construction of roads. The increase of highways, now extending to upwards of 170,000 miles of carriage road, has accompanied the general improvement of the country; and during the latter part of the period in question, the application of a few simple principles has rendered the roads better fitted for all kinds of wheel-carriages.

From these two causes, the means of internal intercourse have been prodigiously increased, and the modes and rate of travelling greatly changed. The method of conveying letters by public coaches, begun in 1784, was immediately followed by a more expeditious rate of travelling, and by an increase in the number of public carriages throughout the country. The rate of travelling, from being four or five miles in the hour, increased to six, seven, and eight, and now at length to ten, and even twelve.* The effect of this change in the rate of travelling has produced a corresponding one in the kinds of horses employed. The coarse and heavy horses of former times were little fitted for this increased exertion, and hence the substitution became necessary of a lighter class with superior breeding. The demand, too, for horses thus employed is large and constant, not only from the numbers employed, but from the waste of the animals. Although a class of horses better suited for the service than the old has been employed, and the stages have been greatly shortened, the burdens could not be reduced in proportion to the increase of speed; and hence the exaction on the muscular powers of the animals has been greatly augmented. We may please ourselves with the speed and facility with which our journeys are performed, but assuredly our convenience is served at the expense of an unheard of degree of animal suffering. In no country does so great waste of the lives of horses take place as in England, and in no country, it is humiliating to own, is there so much cruelty exercised towards these faithful servants. The mortality of horses in the British Isles is at least as three to one, as compared with that which exists in any other country in Europe. Not only does the general demand for horses of all kinds cause them to be employed at an earlier period of life than in other countries, but the cruel service of these public carriages being one in which our finest saddle-horses are often doomed to end their lives, a great increase in the general mortality is produced. When the powers of our saddle-horses begin to fail from age, or when they have met with accidents, or have suffered from the effects of diseases, they are transferred, in the course of trade, to this their new and last employment. How many fine hunters and saddle-horses of all kinds, after having rendered their best services to successive masters, are forced into this terrible service, from which they are never released until they have sunk under their tasks! How many beautiful creatures do we see, spavined, greased, foundered, and otherwise lame, whipped along in our heavily loaded vehicles, and forced to fulfil tasks under which they must shortly perish! Such are the spectacles that meet our eyes on every highway; such is the price paid for our convenience in the sufferings of our helpless servants. But in the marvellous progress of invention, an agent has been called into action which is probably destined to lighten this mass of suffering. This is the power of steam applied to land carriages, and producing the substitution of mechanical for animal power in the performance of the longest journeys. Up to the present time seventy-one railways, unequalled as monuments of public industry and opulence, have been formed, or are in progress, in Great Britain and Ireland. Of these vast roads, fifty-three are opened, and continually employed in the conveyance of innumerable travellers; eighteen are partially so, and ten are incomplete. They are computed to extend to more than 2000 miles, and, passing through the great lines of communication in the country, they must tend in an extraordinary degree to diminish all other methods of travelling.

Not only has this system of public conveyance by coaches called forth a lighter and more agile race of horses, but it has acted in another way on the saddle-horses of the country. By altering the mode of performing journeys, it has diminished the inducement to cultivate particular kinds of horses. Few persons now make distant journeys on horseback, and are willing to travel at the rate of five miles an hour when they can be carried forward at the rate of ten or more. A horseman with his load of saddlebags is now almost as rare a sight as an elephant. A class of saddle-horses, accordingly, formerly used for journeys, has now almost disappeared. They were termed Road-Horses, and were suited to their employment. They were strong, useful, and safe, but had little or no breeding. Their paces were the walk and trot, and the canter and the gallop were nearly as much out of place with them as with the cart-horse. The Cob, too, a little squat horse fitted for drudgery, is with some difficulty to be procured. For the shorter journeys now in use, and for all the usual services of the equestrian, animals of lighter form and more easy paces are preferred, and few habitual riders are satisfied with horses that have not more or less of breeding.

The old English Coach-Horse may be said to have disappeared, or rather to be used only for the heavier labours of draught. He was a large animal of the cart-horse form, usually black, denoting his affinity with the horses of Flanders, which long supplied England and other countries with this kind of horse. He was round-shouldered and heavy in his paces; but being generally trained in the manner of the manège, he had a high and prancing action. His pace was the slow trot, and rarely exceeded four or five miles in the hour. Some of these horses are still to be seen in the carriages of the nobility and older gentry of England; but for

---

* From twenty to thirty miles a-day, at the rate of four miles an hour, was the usual work of the few public coaches in England so late as the accession of George III. At that period, there was but one public coach from London to Edinburgh, which started once a-month, and occupied nearly three weeks in the journey. The other heavy coaches which set off from London performed in like manner slow journeys, in the manner of waggons, to distant parts of the kingdom. Now, more than 1000 well-equipped carriages, with relays of horses at short stages, start from the same great city every day, besides several hundreds which proceed to the towns, villages, and populous places around.

the most part they have given place to animals of far superior breeding and action. The modern Coach-Horse is a very different animal from the old. He is a large Horse, having the degree of breeding conducive to spirit and action, with the strength and bone required for draught. He is greatly used in private carriages, as chariots, gigs, and the innumerable other light and elegant vehicles which are every where to be seen. But not only is the modern coach-horse largely used, but likewise others taken from the various kind of saddle-horses with which the country abounds, from the high-bred hunter down through every degree of strength suited to the weight of the equipage; and universally the tendency is to use horses of lighter form than were thought suited to the heavier carriages and less improved roads of former times.

The term Hackney, in common use, is employed to denote a kind of Horse fitted for general services; and is, therefore, understood to exclude the horses of the highest breeding, as the Thorough-bred Horse and Hunter; and there is further associated with the idea of a hackney, an animal of moderate size, not exceeding fifteen hands, and possessing action, strength, and temper. The hackneys of the present day are of lighter form than those formerly sought for, and there is greater difficulty in obtaining them to suit the services required, from our present mixed varieties of half-bred horses, than when horsemen were contented with the older class of hackneys of stouter form but inferior breeding.

The Cavalry Horse is selected from the mixed races of the country, and has been subjected to the changes which all the others have undergone. He has become lighter and higher bred, insomuch, that the horses of various regiments approach the breeding of hunters; and even those of the regiments, in which a more powerful class of horses is retained, differ greatly from the heavy dragoon horses of former times. They have the characters of the modern Coach-Horse, and not of the Horse of heavy draught. They would have been the pride of the times of chivalry, and afford now the example of the most powerful cavalry horses that are any where to be found. The memorable field of Waterloo showed their importance. It is known that the lighter mounted regiments would have been overborne by the heavy armed cavalry of France but for the presence of the household troops. On the other hand, the lighter horses of our ordinary cavalry have proved themselves fitted by their spirit and endurance for all the ordinary purposes of the campaign.

Although the change so widely produced in the horses of this country, by aiming at a lighter standard, has doubtless given us animals more spirited, active, and graceful, it has, at the same time, had the effect of causing great numbers to be reared defective in form, deficient in strength and bone, and which have lost the hardy qualities of the older races, without having arrived at the properties which superior breeding should communicate. The deterioration is generally admitted, and the causes are deserving of consideration, as indicating the remedies.

A full account has been already given of the system of the modern Course, and the effects have been pointed out of the prevalent practice of running short races with colts not yet arrived at sufficient maturity of bone and muscle to fit them for the full exercise of their powers. The consequence of the system is, that exclusive attention has been directed to the properties of speed, and that the important requisites of strength and power of endurance have come to be regarded as secondary in the cultivation of the animals. Their form, suiting itself by insensible degrees to the conditions required, a race of surpassing swiftness, but inferior in strength and bone to the older horses of the turf, has been called into existence. Now, as this is the race employed to communicate its peculiar properties to the others, it is manifest that a deterioration of its properties, from whatever cause, is calculated to exercise an injurious influence on all the individuals with which it is mingled in blood. But yet more injurious than the rearing of a race of swift but feeble horses, is the constitutional injury inflicted upon the individuals of the race by that system of early forcing, with respect to food and discipline, to which they must be subjected at the earliest possible period of life. Hence the mortality amongst these animals, the strains, the founders, the hernia, and other accidents consequent on over-tension of the parts, and all the functional maladies in the respiratory and other organs which a premature and unnatural exertion generates in the system, and which, not confined to the individuals, descend to the offspring. The evil resulting from these causes to the other breeds of the country, is in proportion to the just estimation in which this noble race of horses has been hitherto held, and the increasing desire to communicate its properties to the inferior races. The remedy might be found in a determination, rigidly carried into effect, by the influential supporters of the turf, to root out the more flagrant corruptions which fashion and cupidity have introduced, especially with respect to the age at which horses shall be permitted to run; or should the influence of individuals be insufficient to effect the necessary reformation, then legislative measures should be called for to correct abuses which are no way essential to the legitimate purposes of the turf, and which deprive the country of the benefit which it is entitled to derive from a race of horses brought to a high degree of perfection, not by the modern gamblers of the turf, but by the care of many generations.

Another cause of the deterioration of the horses of the country is to be ascribed to errors in breeding, arising chiefly from injudicious and extreme mixtures of blood, and inattention to the soundness and qualities of the female parents. It is shown

CLASSES OF BRITISH HORSES.

by experience, that the nearer the characters of the parents approach, the more likely are we to succeed in communicating their common properties to the progeny. By extreme crosses good animals may, without doubt, be produced, but this will be by a kind of chance, and the greater probability is, that the offspring will be defective in some point or other. Nothing may seem so easy to the inexperienced breeder as to produce a splendid coach-horse, or charger, or hunter, by crossing a large cart-mare with a thorough-bred horse; yet how rare are the cases in which the offspring of such extreme mixtures is good! Either the body is too large for the limbs, the head too large for the neck, or some other want of harmony of parts presents itself, which renders the animal comparatively worthless. This effect is constantly observed in the numerous attempts which are made to procure horses of breeding from coarse ungainly mares through the means of extreme crosses. Repeated failures are too often required to convince the breeder that this is not the mode by which well-proportioned animals are to be obtained. We may readily produce a fine Ox from animals the most dissimilar; but where everything depends, as in the Horse, upon a nice adjustment of parts, it is rare that the dissimilar characters of the parents will be so harmonized in the offspring as to produce a well-formed individual. The other error, still more common, is to disregard the soundness and other properties of the mare in breeding. A mare, which is good for nothing else, is by too many thought sufficiently good for bearing a foal, and hence numbers of worthless animals are destined to a purpose for which they are in a peculiar degree unsuited. Even in such a case, chance may do something for the ignorant and careless breeder; but the far greater presumption is, that the offspring will inherit the defects of the dam, and prove of little value.

The remedy for such mistakes is increased intelligence on the part both of those who rear horses, and those who acquire them. The breeder, by possessing adequate knowledge of the principles and practice of breeding, will avoid the error of injudicious mixtures of blood, and of employing females for breeding which are unsuited for the purpose; and the consumer will refuse to purchase animals which are wanting in that harmony of conformation and constitutional soundness, without which no horse can be depended upon for performing the services required of him. The more palpable defects of a large proportion of our mixed class of half-bred horses is the want of depth of the chest, the flatness of the sides, and the too great apparent length of the limbs. Such horses are technically termed weedy, and they form perhaps the worst class of saddle-horses in any country in Europe. They have, for the most part, spirit enough, but they are deficient in strength and bottom; and although they may be easy in their paces, they are usually feeble in their limbs, and unsafe. Great numbers of these very worthless creatures are every year reared and brought to market, which the result shows not to be worth half the food they have consumed.

The number of horses reared and maintained in the British Islands is large, and their value forms no inconsiderable amount of national capital; and it is for the public interest that they should be cultivated with care. By the returns made under the Acts for assessed taxes, it appears that the total number of horses in England, Wales, and Scotland, exclusive of foals, of cavalry-horses, and of the many which it cannot be doubted evade the returns, is 844,505

In Ireland, which pays no assessed taxes, the number may be fairly estimated at 400,000

1,244,505

The prices of the superior horses are very high; but, rating the mass of all ages at from L.5 to L.35 each, the average is L.20, and the total value L.24,890,100.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels R.S.A.

Drawn on Stone & Printed by Fairland 45, St. John's Square

THE OLD ENGLISH BLACK HORSE.

Stallion, by old Blacklegs, from a Mare of the Dishley breed, — bred by Mr. Broomes, at Ormiston, Derby.

CONTENTS

OF

VOLUME I.

I. THE HORSE.

HISTORY.

The Equine Family, and the species commonly recognised.—The Ass; his country, habits in the wild state, and early subjugation.—Remarkable effects of domestication on his temperament and physical powers; his patience, sagacity, and useful services.—Comparison between the Ass of Africa and Asia.—The Breeds of Europe.—Naturalization of the Ass in the New World.—The hybrid progeny of the Ass and Horse.—Value of the Mule as a beast of burden in arid and rocky countries.—Expediency of extending the cultivation of the Mule in the British Islands.—The Zebra, and the Common and Striped Quaggas.—Characters of these species; the fitness of some of them for domestication, and their vast numbers.—The Dziggithai.—The Common or Domestic Horse; his form, habits, and adaptation to the services of man; his condition in the wild state; his country, and the effects on his form and temperament of climate, food, and domestication; his early subjugation and History.—Distinction between the African and Asiatic Horse.—The Barbs.—The Horses of the countries of the Euxine and Caspian.—The Horse of Arabia; his affinity with the races of the Caucasus and Asia Minor; his services in the countries where he is reared.—The Horses of Persia and Turcomania; of the countries of the Kalmuks and Eastern Asiatics; of the countries of the Western Tartars, and of Hindostan.—The Horses of Europe; of the Ukraine; of ancient Greece, and Turkey in Europe; of Ancient and Modern Italy; of Spain, France, Germany, and the British Islands.—The progressive changes of the Horses of England, and the formation of the Race-Horse, by an admixture of the blood of the horses of Barbary and the East.—The Horse as naturalized in America; his escape from human control, and multiplication in a state of liberty; the characters and treatment of the emancipated horses, and modes of subduing them.—Acquisition of the Horse by the Indians, and the remarkable consequences.—Horses of the countries of the Anglo-Americans; of the Canadians, and West India Islands, Pages i-xxii

1.—THE RACE-HORSE.

The progressive steps in the formation of a race of horses of recognised lineage, of peculiar characters, and destined exclusively for the Course.—Recording of their pedigrees, and the effect in preserving the acquired characters, and purity of descent.—Notices of Horses of distinction on the Turf; the White and Byerly Turks, the Godolphin Barb, the Darley Arabian, the Flying Childers, Herod, Eclipse, Matchem, and others.—Characters, conformation, and colour of the Race-Horse; rearing, education, and training.—The practices of the Course.—The Race-courses of England: Newmarket, Epsom, Ascot, Goodwood, Doncaster, &c.—The Thorough-bred Horse, and the causes of his superiority over all others for the Course.—Racing with half-bred Horses, and objections to the system.—Inferiority of the Arabs and other Oriental Horses for the Turf.—The Steeple-chase; its uselessness and cruelty.—Laws of the Turf.—Balancing the powers of Horses by weights.—Former and present practice of the Turf regarding the weights to be carried, and the length of the Course.—Trials of the speed of Horses, and the results.—Classes of persons connected with the Course.—Boys of the stables; their duties, habits, and the means of bettering their condition.—Jockeys; their duties and qualifications; their weights, modes of riding, and system of wasting or training.—Examples of this class in the cases of Buckle, Chifney the elder and younger, Robinson, and others.—Training-grooms, and public establishments for training.—Owners of Horses, and influential supporters of the Turf.—Anecdotes illustrative of this class; the Duke of Cumberland, Mr O'Kelly, the Earls of Grosvenor and Derby, the Dukes of Queensberry and Hamilton, the Prince of Wales, the Marquis of Rockingham, Sir Henry Vane Tempest, &c.—The other classes of persons who support the Turf, for the purposes of amusement or gambling.—Remarks on the institution of the Course as a system of Public Games; its importance as perpetuating a race of Horses, which are made to communicate the property of "blood" to the other races; its effects on national character and manners.——The frauds which take from the interest and utility of the spectacle; the withdrawing of Horses; the running to lose; deceptive trials; the getting up of favourites; the gambling of jockeys and trainers; confederacies, &c.—Exemplification of these abuses, and their effects.—The necessity of curbing the abuses of the Turf, to preserve these national sports to the country, and render them subservient to the useful purposes to which they can be applied.—Effects of running Colts before they have acquired the necessary maturity of bone and muscle: the bad consequences not confined to the Horses of the Turf, but extended to all the breeds of the country to which this noble race of Horses communicates its properties, . . . 1–22

2.—THE HUNTER.

The Hunter, formed by an admixture, with the native races, of the Horses of Barbary and the East, rarely directly, but through the medium of the Race-horse.—The Hunter cultivated with less exclusive attention to purity of descent than the Race-horse, and constituting a Class, rather than a Breed, of Horses.—Distinctions between the form and character of the Race-horse and of the Hunter.—Difference between the older system of hunting and that now pursued.—Increased speed of the modern chase, and the effect on the kinds of the Horses employed.—Practice of the modern hunting-field considered with relation to the changes in the form and characters of the Horses.—High estimation in which the English Hunter is held, and the great drain of the breeding mares to foreign countries, 23–26

3.—THE CONNAMARA HORSE.

Description of the Connamara Horse, forming a race of elegant Ponies found in the extreme west of Ireland.—Its Spanish origin.—The neglect of the breed, and its retention of the characters of the Andalusian race, ... 27

4.—CLASSES OF BRITISH HORSES.

History and character of the ancient Horses of the British Islands.—Use of the chariot by the ancient Celtæ in the manner of the nations of the East.—Effects on the native Horses,—of the Roman invasion, of the Saxon colonization, and of the Norman Conquest.—Changes produced on the native Horses by a communication with Northern Europe, then with the countries of the Mediterranean, and at length by the institution of the Course.—Horses of the Zetland Islands; their diminutive size; their speed, sagacity, and docility.—Ponies of the Orkney Islands.—Ponies of the Highlands of Scotland, and of

THE OX.—*Continued.*

Ayrshire Breed.—Origin of the breed, and the means by which it has been moulded to a common standard of form.—Description of the breed;—its size, colour, form, and properties.—Peculiar adaptation of the females to the husbandry of the dairy, and their diffusion to the dairy districts of Scotland, Ireland, and parts of England, ... Pages 25–26

13.—THE ALDERNEY BREED.

Naturalization in the Norman Islands of the British Channel.—Description of the Breed; its affinity with the races of Norway; its slender and angular form;—its constitution and temperament.—Value attached to the females for the domestic dairy, and the importation of them into England.—Account of the islands of the Channel; the minute division of property in land, and the effect on the practices of rural industry; the importance attached to the cow by the inhabitants; and the laws of the insular legislatures for preserving the purity of the race, . . 27–28

14.—THE FIFESHIRE BREED.

Mixed descent and characters of the cattle of Fifeshire.—The Falkland Breed; its foreign origin and establishment at the royal domain of Falkland.—Notice of the ancient manor of Falkland, and the traditions regarding the introduction of foreign cattle.—Description of the Falkland Breed;—its form, colour, properties, and affinity to the Black dairy breed of Holland.—Diminution of the numbers and near extinction of the Falkland Breed.—The means suggested for improving the mixed races of Fifeshire, . . 29–30

15.—THE SHEETED BREED OF SOMERSETSHIRE.

Characterized by the contrast of different colours on the body.—Origin of the Breed; its adaptation to the dairy; diminution of its numbers.—Notice of the Polled Dairy Breed of Ireland, and of the mixed races of the dairy districts of England.—The suitable form of the milch cow, and methods of feeding applicable to the practice of the dairy, ... 31–32

§ THE DAIRY.

Milk; its use as food in all nations, and from the earliest periods of human society.—Knowledge possessed of the methods of preparing milk by the people of the East; by the Greeks and Romans; by the Celtic and northern nations.—The milk of different species of animals;—of the Domestic Cow, of the Asiatic and Africa Zebu; of the Buffalo, of the Yak, of the Camel, of the Goat, of the Sheep, of the Reindeer, and of the Mare and Ass.—Nature, composition, and properties of Milk.—Butter, and Cheese, the former derived from the oily portion of the milk by agitation, the latter from the albuminous part by coagulation.—Destination of the dairy, for the supply of milk, for the fabrication of cheese, or for the production of butter.—Separation of butter, either from the oily matter of milk, or from the milk without separation of the cream.—Preparation of butter, construction of the dairy, implements employed, and manual operations.—Preparation of cheese, coagulation of the milk, expression of the whey, pressure of the curd, and the other processes of the manufacture.—The various kinds of cheeses.—Principal districts of the cheese manufacture in England: the cheese of Gloucestershire, of Somersetshire, of Wiltshire, of Cheshire, and of the counties north of the Humber; of Stilton, and the districts producing the richer cheeses; of Scotland and of Ireland.—Residual produce of the dairy and its uses.—Importance of the dairy as supplying a large part of the food of the people, 32–42

16.—THE HEREFORDSHIRE BREED.

The older cattle of the county of Hereford, and their general affinity with the races of Pembroke, Devon, Sussex, and Glamorgan.—Formation of the modern breed by Benjamin Tomkins, of King's Pion, in the county of Hereford.—History of Tomkins, and his principles and practice of breeding.—Reputation of this breed, and its progressive diffusion.—Description of the modern Hereford Breed; its size and form, colour, and properties.—Its adaptation to the purposes of grazing, the smallness of the females, and their unsuitableness for the dairy.—Effects to the county of Hereford as a breeding district by the acquisition of this breed.—Opinions of the breeders of Herefordshire regarding its comparative value.—Progress of the Teeswater Short-Horns into the districts of the Herefords, ... 43–44

17.—THE LONG-HORNED BREED.

The Long-Horned Breed, and its naturalization for a period unknown in Ireland and the western counties of England.—Its extension through the midland counties to Derbyshire and Leicestershire.—Characters of the older Long-Horned Breed, and distinction between it and the other races of the country.—Improvement of the breed in the midland counties by Mr Webster of Canley and others, and finally by Robert Bakewell of Dishley.—History of Bakewell, and his early experiments on the improvement of the domestic animals.—His principles of breeding as applied to the Ox, and his formation of an artificial breed, differing in its characters from the old.—High reputation of the Dishley Breed of Long-Horns, and its wide diffusion.—Description of the Breed; its size, form, and faculty of fattening.—Defects of the breed: inferior quality of the beef; tendency to the accumulation of fatness on particular parts of the body; and deficient power of the females to secrete milk.—Decline of the reputation of the breed, and extension of others believed to be better suited to the purposes of the breeder and the grazier.—Remarks on the principles of breeding adopted by Bakewell, and on the limits to their practical application, . 45–48

18.—THE SHORT-HORNED BREED.

Difference of the characters of the Long-Horned races and those of the eastern and drier counties towards the German Ocean.—The former cattle of Lincolnshire and the country north of the Humber.—Their resemblance to the races of Holland, Holstein, and Jutland.—Importation of cattle from Holland, and the countries of the Elbe.—The Cattle of the district of the Tees; their former character and progressive changes, and their ultimate improvement by Charles and Robert Colling of Darlington, in the county of Durham.—Principles of breeding adopted by Charles Colling, and the results.—Information possessed regarding the early practice of Colling, and the means by which he perfected his stock.—The high reputation which it acquired, and the extension of its influence by the system of letting bulls for hire.—Sale and dispersion of the stock of Charles Colling in the year 1810.—Successful improvements of Robert Colling, and his contemporaries and successors.—Description of the modern Teeswater or Durham Breed; its size, colour, form; its faculty of arriving at early maturity, and at a greater weight than any other race of cattle of the same age.—Great economical importance of this breed, not only from its own value, but from its being made the means of communicating its acquired characters to the other races of the country.—Principles to be observed in the further cultivation of the breed, . 49–53

Summary and Classification of the Breeds of British Cattle, 54–55

THE OLD ENGLISH BLACK HORSE.

PLATE V.

STALLION, by Old Blacklegs, from a Mare of the Dishley Blood; bred by Mr BROOMES, at Ormiston, Derby.

From early records we learn that a race of Horses of a black colour has existed in Europe from a remote age. It appears to have been the prevailing race of the north of Gaul, and of Germany from the mouths of the Rhine eastward, having inhabited, it may be believed, in the wild state, the vast regions of marsh and forest which stretched all through Europe eastward to the Euxine Sea. It was well known to the Romans, who derived the most powerful horses of their cavalry from Belgic Gaul; and when at length, in an evil hour, the Barbarians, as if by a common impulse, poured their swarms into southern Europe, then the Great Black Horse of the North became an instrument of destruction, and an object of terror; living long in many a legend and tale of blood, and becoming associated in the minds of the distracted people with ideas of the anger of the gods and the power of demons. It was carried into Italy, where its descendants yet exist, and into Spain, whence it probably passed into Mauritania with the Vandals. In the middle ages these powerful Horses were the steeds of knights and men-at-arms, and are used for mounting the heavy cavalry of the great military governments of Europe in the present day.

The race of the European Black Horse exists unmixed in the countries of the Lower Rhine, of the Meuse and the Scheldt, comprehending the States of Holland and the kingdom of Belgium. It is in these countries, as in ancient times, that the Black Horse of Europe retains the weight and size which were regarded as characteristic of his race. But the same stock extends from the Low Countries eastward through central Germany, diverging to the north and south, from Switzerland to the Baltic, and exhibiting those diversities of size and aspect which differences of food, climate, and elevation, tend to produce. Its typical form is round and massy, the chest is wide, the neck strong and muscular, the limbs are short, stout, and hairy. It possesses physical strength and safe action, but is wanting in lightness and speed. It presents every variation of size, from the little sturdy German hackney, to the larger animals suited for the waggon and heavier carriages.

The same widely-spread race extends into England, where it presents itself with the same general characters as in the ancient countries of the Belgic Gauls, the Batavi, the Frisiandones, and others. It is found in numbers from the Humber to the Cam, occupying the rich fens of Lincoln and Cambridge, and extending westward through the counties of Huntingdon, Northampton, Leicester, Nottingham, Derby, Warwick, and Stafford, to the Severn. Although most abundant in these districts of rich pastures, it has extended northward, and very widely southward, into the countries of the Chalk, retaining the typical characters, but varied with the climate, food, and other circumstances affecting its culture and condition. In the commons and poorer grounds it presents the coarse pack-horse form distinctive of the greater part of the older Horses of England. But in the fens and richer cultivated country, it attains to the strength and stature of the largest horses which the world produces.

But the older Black Horse of the fens and midland counties differs in several respects from the modern cultivated race. Few now exist in their original state of rudeness; but scattered individuals are still to be met with, bordering on the commons, or in possession of very old farmers, and their condition shows the changes which time and cultivation have effected on the race. These older Horses possess the bulky form which everywhere seems to characterize the black stock in the countries where rank pastures exist. They have coarse heads, large ears, and thick lips, largely garnished with hairs. They have coarse shoulders, stout hairy limbs, broad hoofs, and short upright pasterns. They are strong, of a soft temperament, and eminently deficient in action, spirit, and bottom. The first regular attempt which we are informed of to improve this ungainly breed, was made by one of the Earls of Huntingdom, who imported several Dutch Coach Stallions, which, with great difficulty, he persuaded his tenants on the Trent to make trial of. Many years afterwards ROBERT BAKEWELL, of Dishley, in the county of Leicester, began to apply those principles of breeding to the improvement of the Draught-Horse, which he had adopted with unrivalled skill and success in the case of the other domestic animals. He acted upon the conviction that the properties of the parents, with respect to both form and temperament, can be transmitted to the progeny, and rendered permanent by continued reproduction. He went himself to Holland, and importing several mares, crossed them with native stallions; and pursuing a course of careful selection, he formed at length a stock which he regarded as possessed of the properties required. He does not appear to have attempted any mixture of the blood of horses of high breeding, but to have confined himself to the kinds suited for slow labour. His stock was highly valued, and

THE OLD ENGLISH BLACK HORSE.

its descendants were preserved with care by succeeding breeders. The figure in the plate represents a descendant of one of his most valued horses, the progenitor of some of the finest of the old Dray-Horses of London. If it does not exhibit what would now be regarded as the form of a perfect Draught-Horse, it shows the degree of breeding which BAKEWELL thought sufficient to communicate to horses employed in draught. His example was beneficial; and Leicestershire, as well as the adjoining counties of Derby and Stafford, became distinguished for the breeding of this class of Horses.

The modern English Black Horse retains the general characteristics of the pre-existing race, but greatly modified. His colour is usually a sooty black, with frequently a white lozenge-shaped mark on the forehead; and he has very generally one or more of the feet and part of the legs, and not unfrequently the muzzle, white. His body is massive, compact, and round; his limbs are stout; his chest is enormously broad, and his neck and back are short. His mane is thick and somewhat frizzled, and his legs below the knee and hock are hairy down to the heels. His whole aspect conveys the idea of great physical power without corresponding action. The main defects of his conformation and temperament, are his too great bulk of body and want of action and mettle. For a pull with a heavy weight he is admirable; but he steps out short, and is slow in all his motions.

These powerful horses are in extensive demand, not only in the midland counties, where they are chiefly reared, but over all the south of England, for the labours of the field, and for waggons and heavy carriages of all kinds. They are every where to be seen moving at a slow pace in the numerous heavy waggons by which merchandise is conveyed inland, and in great numbers in all the larger cities and sea-port towns, where they are used for the transport of heavy goods at wharfs, for the carriage of coals, timber, building materials, and for a thousand purposes. In London, where the largest and finest are in demand for the carts of brewers, the waggons of coal-merchants, and other uses, the stranger sees with admiration the vast number of enormous carriages in endless motion through the crowded streets, drawn by teams of the largest horses in the world: and doubtless there is something noble in the aspect of these huge creatures, yoked in lines, and obedient to the voice amidst all the tumult of a great city; but examination shows, that there is an excessive waste of power, both in the unnecessary bulk of the animals, and in the manner in which their services are performed. They are usually attached in lines, which causes them to pull by sudden jerks and with unequal force; and in turning the corners of narrow streets and lanes, it is often seen that the entire weight of the enormous carriage is thrown, for a time, upon the shaft horse. It is contended by many, that extreme weight and bulk of body are necessary for these horses to enable them to resist the jolting and sudden obstacles encountered on the rough pavement which they never leave. But in truth, it is habit and a species of pride which lead the owners of waggons to prefer the largest and most showy horses to those of moderate size and more useful action; for experience cannot but show that it is muscular force, and not the *vis inertiæ* of great weight of body, which best enables a horse to overcome continued obstacles. The mere gratification of taste, however, in the employment of these immense and splendid horses, would scarce require a passing censure, were it not that this gratification exercises a really hurtful influence in the breeding districts, causing attention to be directed to size and appearance rather than to useful properties, and tending to perpetuate that unnecessary bulk of body which constitutes so great a defect in the breed. Nor is this influence unimportant in degree, for it is to be observed, that the demand for horses of the largest class is not confined to the capital, but extends to all the numerous cities and populous towns where drays and waggons are in use. When animals of the largest size are in demand, and the highest prices are paid for them, it becomes the interest of breeders to employ large stallions, and use every means to favour the development of size in individuals. In the counties of Lincoln and Cambridge, whence the great London drays are chiefly supplied, a breeder measures his success by the stature of the individuals which he is able to rear. At the age of two years and a half, the colts are often upwards of seventeen hands high. They are bought at this age by graziers near the capital, and used in the light work of the plough until four years old, when they are fit for the services to which they are destined, and disposed of at high prices.

But the great English Black Horse, with all his existing defects of temperament and form, undoubtedly affords the basis of a valuable breed of horses suited to the labour of the fields and heavy draught of every kind. But in order that he may be brought to the degree of improvement of which he is capable, sound opinions must prevail regarding the properties required in a horse of draught, and the means of using his powers. Strength and weight are doubtless an essential requisite in this class of horses; but the strength required is that which is produced by a just conformation of parts, and not by mere weight of body. A Draught Horse should, along with the form indicative of physical strength, possess length and depth of the posterior extremities, with the form of shoulder which shall allow him to step out freely. In these points the English Black Horse is eminently defective, and his pace accordingly is slower than that perhaps of any other Horse of the same class in Europe. Nevertheless a great improvement has recently been effected on the breed, which, it is to be trusted, will be progressive.

Drawn by Mr. Nicholson, R. S. A. from a Painting by Mr. Shiels, R. S. A.

Drawn on Stone & Printed by Fairland, 45 St. John's Square

THE CLEVELAND BAY.

Stallion, by Cotfos, the Sire of Bay Chilton; — dam by Mr. Ayres' Rainbow, bred by Mr. Robertson, of Naperton, Holderness

THE CLEVELAND BAY.

PLATE VI.

STALLION, by Catfos, the Sire of Bay Chilton; Dam by Mr AGRES's Rainbow; bred by Mr ROBERTSON of Naperton, Holderness.

The Black Horse, it has been seen, is widely spread over the central and southern counties of England, extending from Lincolnshire westward and southward. But, on crossing the Humber to the north, a change appears in the form and characters of the ordinary horses of the country. The black gives place to the brown and lighter colours, and the horses become less bulky, and of a form more indicative of activity. This change appears throughout Yorkshire, Durham, Northumberland, and beyond the Tweed, and distinguishes at a glance the northern breeds of the larger horses from the slow and weighty Black Horse of the southern counties.

When we compare the coasts of Britain with those of the opposite continent, we find a striking similitude in their geological formation, and in their animal and vegetable productions. All along the British Channel from Land's End to the Straits of Dover, we have a country resembling, even to the indentations of the coast, the countries of France from Ushant to the Pas de Calais. Bending northward, the flat alluvial countries of the eastern coasts of England correspond in the closest degree with the low lands of Belgium and Holland. The marshes of the Zuyder Zee seem to be reproduced in the fens of Lincoln, and in both localities the horses resemble one another even to the colour of the skin. Stretching again from the Humber northwards, the country in England corresponds with the Danish dominions of Holstein, Sleswick, and Jutland, and each locality produces horses tall and strong where circumstances favour the development of their forms, of diversified colours, and differing from the great horse of the marshes; and we might pursue the parallel until we reached the granitic mountains of Norway and the Scottish Highlands.

The country from the Tweed to the Humber, forming a part of the ancient Anglo-Saxon kingdom of Northumberland, was early noted for the numbers and quality of its horses. The Northumbrians, engaged in incessant forays and wars, were distinguished as the most daring horsemen of the Island, and their horses are described as stout, agile, and hardy. Durham, although it early became the patrimony of St Cuthbert, did not, on this account, become the less warlike and predatory; and Yorkshire long retained the sad distinction of being the most frequent arena of the foreign and civil wars which desolated the kingdom. The people of these countries have retained their ancient passion for the Horse; and in more peaceful times Yorkshire became a nursery for horses, and is now the greatest breeding district in England.

The horses reared in this part of England are, of all the varieties, suited to the saddle, the coach, the waggon, and the plough. They present every diversity of size, colour, and breeding. The larger kinds used for draught are chiefly reared in the northern parts of the district. When unmixed with the blood of horses of higher breeding, they are a tall and powerful race of animals, adapted to every labour requiring weight and muscular force. But it is the peculiarity of the entire district, that much of the blood of the superior races has been communicated to the common kinds, and that comparatively few of those employed in labour are altogether unmixed. This results from the practice long and extensively pursued all over Yorkshire and Durham, of breeding horses especially for the saddle and the lighter carriages. From this cause horses of some breeding become employed in common labour, and the blood of the Race-Horse is insensibly diffused through the general mass.

It is the progressive mixture of the blood of horses of higher breeding with those of the common race, that has produced the variety of Coach-Horse usually termed the Cleveland Bay. This variety is termed Bay, from the prevailing colour, derived from approximation to the superior races, and Cleveland, from the fertile district of that name situated in the North Riding of Yorkshire on the Tees. About the middle of last century this district became known for the breeding of a superior class of powerful horses, which, with the gradual disuse of the heavy old Coach-Horse, became in request for coaches, chariots, and similar carriages. The breed, however, is not now confined to the district of Cleveland, but is cultivated throughout all the great breeding district of this part of England, although Cleveland yet preserves its pre-eminence, and supplies with stallions the parts of the kingdom where superior Coach-Horses are reared.

The true Cleveland Bay may be justly termed a Breed, from the similitude of characters presented by the individuals of the stock. It has been formed by the same means as the Hunter, namely, by the progressive mixture of the blood of the Race-Horse

with the original breeds of the country. But a larger kind of horse has been used as the basis, and a larger standard adopted by the breeder. By coupling a Race-Horse with a Draught-mare, an animal will be produced partaking of the properties of both parents, and which may be employed as a Coach-Horse. But the results, as was before observed, of such a mixture are uncertain, and the progeny will probably be wanting in just proportion of parts. Many Carriage-Horses are doubtless produced in this manner, but many of them, if their history were told, have been found to be worthless. To rear this class of Horses, the same principles of breeding should be applied as to the rearing of the Race-Horse himself. A class of mares, as well as of stallions, should be used having the properties sought for. It is in this way only that we can form and perpetuate a true breed in which the properties of the parents shall be reproduced in their descendants. The district of Cleveland doubtless owed the superiority which it continued to maintain in the production of this beautiful race of horses to the possession of a definite breed, formed not by accidental mixture but by continued cultivation.

The demand for these Horses has long been very great in London and all the more opulent towns of the kingdom, and the number carried abroad is large. The English purchasers generally require the bay stock; but the foreign dealers do not reject what are called the vulgar colours, and therefore carry away many horses which could not be sold in England but at a low price.

Although the Cleveland Bay appears to unite the blood of the finer with that of the larger horses of the country, in the degree sufficient to combine action with strength, yet modern taste has been continually refining upon this form of coach-horse by adopting a lighter standard. The Cleveland Bay, having arrived at a certain degree of breeding, can receive, without the violence of too extreme a mixture, a still further infusion of the blood of horses nearer to the Race-Horse. Many of them are accordingly crossed by Hunters and even Thorough-bred Horses, and thus another variety of coach-horse is produced of lighter form and higher breeding; and, in truth, many of our superior curricle and four-in-hand horses are now nearly thorough-bred.

The bay colour is in the most general estimation for the better class of carriage-horses, yet the grey is not unfrequently preferred. The grey colour of the Horse, it is to be observed, derived from the earliest times of which we have any records, manifests itself in our various races, from the ponies of our heaths and commons, to the highest bred horses of the course and hunting-field. Greys could therefore be produced in any numbers and of every degree of strength and breeding. Although not held in equal estimation with the bays, they furnish an agreeable and elegant variety. Cream-coloured horses are rarely used except for the purposes of pomp and parade. Those derived from Germany are of a soft temperament, and little adapted for active exercise. The true region of the cream-coloured Horse is Asia, where in every age it has been cultivated and esteemed; and it would be easy to obtain cream-coloured horses from Asiatic Turkey far surpassing those of Germany. Several regiments of Russian cavalry are splendidly mounted on white horses derived from the countries of the Caucasus.

Drawn by M.r Nicholson, R.S.A., from a Painting by M.r Shiels, R.S.A.

Drawn on Stone & Printed by Fairland, 45, St. John's Sq.

THE SUFFOLK PUNCH.

Stallion, rising 7,—the property of M.r Denny, Egmoor, Norfolk.

THE SUFFOLK PUNCH.

PLATE VII.

STALLION, rising Seven, the property of Mr DENNY, Egmoor, Norfolk.

Besides the heavy Black Horse, and the other larger horses of the country employed in draught, a variety exists possessed of such peculiarities of form and colour, that it is properly regarded as a family or breed. It is termed the Suffolk Punch, from the county of Suffolk, where it has been long reared, and from the stout or punchy form distinctive of the individuals. It extends from Suffolk throughout the neighbouring counties of Norfolk and Essex, where it is held in estimation for the purposes of common labour. It is distinguished by its colour, which is of a light dun or sorrel, sometimes deepening into chestnut, with lighter coloured mane and tail. It was held to be a useful kind of horse, naturally of moderate stature, and though slow, possessed of good endurance. But for a long period the breed has been largely crossed with other varieties, so that it is now somewhat difficult to obtain the Suffolk Punch in a state of purity. The older breed was especially valued for the steadiness of the individuals in draught, and the trueness with which they performed their work of all kinds. No horses exerted themselves better at a dead pull. A true Suffolk Punch would draw almost till he dropped down. A team, at a signal given, would, without a whip, bend in a moment to their knees, and drag everything along.* This property was so remarkable in the old Suffolk Punches, that cruel wagers used to be laid on their powers of draught, and many fine horses, it is said, were ruined by their indomitable spirit. They were, besides, a hardy race of horses, capable of subsisting on ordinary food. Their form, however, was peculiarly plain. The heads were large, the necks short, the muzzles coarse, the shoulders low and cloddy; but the limbs were short, the backs straight, the loins wide, and the haunches well developed.

The colour distinctive of this variety connects it with a race widely diffused throughout the north of Europe and Asia, from the Scandinavian Alps to the plains of Tartary, where it characterizes the herds still in a state of liberty. The dun colour which distinguishes the race is often marked with a dark streak extending along the spine, and sometimes with a cross bar of the same colour on the shoulder. Its typical colour is ever reckoned indicative of a hardy temperament. It varies in size with the fertility of the countries in which it has been naturalized, being of the pony size in the mountains and higher latitudes, but becoming enlarged to the stature of the other races in the countries of abundant herbage. It is found from the Gulf of Bothnia to the mountains of Granada, and doubtless owes its extension southward to the conquests and migrations of the Barbarians. In Prussia and the north of Germany, it is largely used for the remounts of cavalry. It is believed to have been carried to the eastern counties of England from Normandy, which yet possesses many fine horses of this variety, introduced, it may be believed, by the earlier invaders.

The Suffolk Punch breed of England, it has been said, has been crossed with other varieties. These are chiefly the larger horses of Yorkshire and Durham. By this mixture individuals have been improved in figure and action, but that uniformity of the breed, which enabled the breeder to reproduce with certainty the characters of the parents in the progeny, has been to a certain degree taken away, with something, too, of the hardiness and peculiar temperament of the older family. Fashion and taste have had more to do with this change than considerations of utility. The dun colour is in less request than the darker brown or bay, although the former is characteristic of the hardiest breeds of horses in Europe. Of recent years a considerable demand has arisen for Suffolk Punches, for the purposes of the dray and waggon. Many fine teams of this variety are to be seen in London, where, amid the tumult of the crowded streets, the massy forms and bright manes and tails of the horses present a striking appearance. The modern Suffolk Punch is certainly superior to the Black Horse in activity and endurance, and is at least equally well suited to the continued service of the dray; but the demand for large horses has the effect, as in the case of the Black Horse, of inducing attention to size rather than the useful properties. Sometimes the Suffolk Punch has been crossed with horses of high breeding. In this way good horses may occasionally be produced adapted to the chariot and coach; but unless a breed were formed, as in Cleveland, by progressive intermixture, no permanent supply of superior horses could be calculated upon from this source.

Other varieties of the larger horses suited for labour exist in different parts of England, but, for the most part, they are either

---

* Library of Useful Knowledge.

THE SUFFOLK PUNCH.

of too mixed and varying characters to be regarded as breeds, or too few in numbers to be of economical interest beyond the districts which produce them. When unmixed they are often merely the older pack horses, somewhat enlarged in size, and presenting the varieties in colour and form which these native horses have possessed for an unknown period. In Cornwall and the higher parts of Devonshire, Wiltshire, and elsewhere, low sturdy horses are in common use, which are active and useful beyond what their external appearances would indicate. The lower parts of Wales, in like manner, produce horses of moderate stature and ordinary form, but which are hardy and true to their work; and the same remark will apply to a great part of the horses of the districts bordering on Wales. Northward through Lancashire, we find horses of a mixed breed generally inferior in figure to those of the eastern counties, but stout and well adapted for common labour. In Cumberland, many good Horses are produced, which may be regarded as related in part to the Durham and in part to the Clydesdale breed of Scotland.

THE CLYDESDALE BREED.

Stallion, 7 Years old, the property of Mr Law, Morton, near Edinburgh.—with a Zetland Pony the property of the Rt Hon.ble the Earl of Hopetoun.

Drawn by Mr Nicholsen R.S.A. from a Painting by Mr Shiels, R.S.A.

Drawn on Stone & Printed by Fowlis and, 45, St. John's Square.

THE CLYDESDALE BREED.

PLATE VIII.

STALLION, Seven Years old, the property of Mr LAW, Morton, in the County of Mid-Lothian; and Zetland Pony, the property of the Right Honourable the EARL of HOPETOUN.

The Horses of Scotland employed in labour, pass by gradations from the smaller varieties of the mountainous districts to the larger breeds of the plains and cultivated country. It is in the Lowlands that those adapted for the heavier labours, and properly termed Draught-Horses, are reared. Although varying in size, form, and properties, in different districts, they have been gradually approaching, with the increased means of general intercourse, to a greater uniformity of characters. The part of Scotland which had early become the most distinguished for the production of the larger horses for draught was the county of Lanark, otherwise termed Clydesdale. This district, intersected in its whole extent by the river Clyde, comprehends a large portion of that vast field of coal to which Scotland owes its existence as a manufacturing country, and contains within its bounds the city of Glasgow, which, from a secondary town, has become, within the period of less than a century, one of the most rich and populous cities of the empire. The rapid and continuous increase of this great manufacturing city, and the prodigious land-carriage in the rich mining district connected with it, created a demand for horses of superior strength and size for the purposes of draught. The kind of carriage employed for the transport of minerals and all kinds of goods, being the single horse-cart, the Horses required were those which should combine with weight of body a considerable degree of muscular activity. Those of the district have become, in an eminent degree, adapted to the conditions required, and being intermixed in blood, and formed on a common model, a breed has been produced with well-defined characters. It is termed the Clydesdale Breed, because the individuals are mainly derived from the district of that name.

The Clydesdale Breed of horses has a manifest affinity with the Black Horse of Holland and the Netherlands; and universal tradition refers to an importation, at an early period, of a number of Flanders stallions to the neighbourhood of Hamilton, by one of the Dukes of that name. That a mixture between the Black Horse of Europe and the native race took place at some period cannot be doubted; and there is good reason to believe, that the tradition is well founded which refers this national boon to the Noble House of HAMILTON, whose extensive domains embrace the district the most early noted for the production of this race of horses. But it may likewise be believed, that horses from different sources have been from time to time introduced into the populous mining and manufacturing district of this part of Scotland, and that thus the breed of Clydesdale is really of very mixed lineage, although its distinctive characters have been communicated to it by the blood of the Black Horse.

The Clydesdale breed of horses, as it now exists, is of the larger class, the ordinary stature of the individuals being sixteen hands. Their prevailing colour is black, but the brown or bay is common, and is continually gaining upon the other, and the grey not unfrequently manifests itself although the parents should have been dark. They are longer in the body than the English Black Horse, and less weighty, compact, and muscular; but they step out more freely, and have a more useful action for ordinary labour. They draw steadily, and are usually free from vice. The long stride characteristic of the breed is partly the result of conformation, and partly of habit and training; but, however produced, it adds greatly to the usefulness of the horses, both on the road and in the fields. No such loads are known to be drawn at the same pace by any horses in the kingdom as in the single-horse carts of carriers and others in the west of Scotland; and in the labour of the fields these horses are found to combine activity with the physical strength required for draught.

The horses of this breed are now reared over all the counties of Renfrew, Ayr, and Dumfries, but they are still produced in the greatest numbers in Lanarkshire. They have fair justice rendered to them when young, by their being allowed their natural exercise over a large range of pasturage until the age at which they are taken up for work. Although not pampered, the mares, when in foal, are kept in good order by means of turnips, potatoes, and similar food. The only kind of horses, too, reared by the farmers being those of the native stock, there is no mixture of breeds, and little employment of those half-bred mares which are common in other breeding districts. On the other hand, the rearing of draught horses being more a part of the regular routine of the farm than elsewhere, the farmers are usually satisfied to obtain a fair average stock without seeking to produce horses of superior figure and higher price. Fewer examples of very fine horses may be presented here than in other breeding districts, but fewer fall below the standard aimed at.

THE CLYDESDALE BREED.

These horses are disposed of in great numbers at the fairs of Glasgow, Rutherglen, and others in the district, and numerous dealers resort thither from different parts of the kingdom to procure them. They are carried largely to Lancashire and even to the southern counties of England. They are taken in considerable numbers to the north of Ireland, where they are used by carriers and others. They have spread over the whole Lowlands of Scotland from Caithness to the Solway Firth, and have been mixed in blood with all the other varieties. They are now reared in the eastern, as well as in the western counties, with more or less of intermixture with the pre-existing breeds. The figure in the plate represents a fine and powerful Horse of this mixed lineage, which retains the essential characteristics of the Clydesdale stock.

The Clydesdale Horses, although inferior in weight and physical strength to the Black Horse, and in figure and showy action to the better class of the Draught Horses of Northumberland and Durham, yet possess properties which render them exceedingly valuable for all ordinary uses. On the roads the individuals perform tasks which can scarcely be surpassed, and in the fields they are found to be steady, docile, and safe. It is important not only to the district which produces them, but to all the others to which they are carried, that a due attention be given to a development of the useful properties distinctive of the breed. In Clydesdale, some breeders apply themselves to the rearing of Stallions, and exhibit in their practice the skill and liberality which can be desired; but in the case of the mass of breeders in the district, no peculiar energy or skill is exhibited. They are often too easily contented with cheap and inferior mares, and not always sufficiently aware of the importance of employing stallions of the first class.

II.—THE OX.

1.—THE WILD OR WHITE FOREST BREED.

Existence of a race of Wild Oxen in the ancient forests of Europe; confounded by writers with the Bison.—Existence of this race in England, and, until the sixteenth century, in the great central forests of Scotland.—Its preservation in the parks of individuals, of North and South Britain.—Characters and habits of the race as it is found in the unreclaimed state.—Ancient notices of the same race in Wales; its preservation in that country in the state of domestication; its existence in the Pyrenees, and in other parts of Europe.—Examination of the characters of the wild race, and the proofs that it is identical with the cattle inhabiting the mountains of Scotland and Wales, . . . Pages 1–4

2.—THE PEMBROKE BREED.

The Pembroke Breed, a variety of the mountain cattle of Wales.—Description of the breed; its form, size, and colour of the skin, and the adaptation of the females to the dairy.—The Anglesea Breed; allied in its essential characters to the Pembroke, but of coarser form.—General character of the other mountain races of Wales; their affinity with one another, and consequent descent from a common stock.—Means to be employed for improving the breeds of Wales.—District of Castle-Martin, ... 5–6

3.—THE WEST HIGHLAND BREED.

The West Highland Breed, a variety of the races occupying the primary mountains of North Britain.—Relation between the mountain cattle of Scotland and the ancient Uri sylvestres.—Description of the West Highland Breed; its form, size, colour, and properties.—Races of the central and northern Highlands.—Economical importance of these Breeds, their adaptation to a country of heaths and mountains, and the means of improving them, . 7–8

§ HISTORY OF THE OX.

Division of the Bovine family into three groups, the Bisontine, the Bubaline, and the Taurine.—The Bison; its existence in the woods of the Caucasus, and its preservation in the imperial Forest of Bialowieza.—Natural history of the European Bison.—Bison of America, and the Musk-Ox of the northern glacial regions.—The Bisons of Central Asia.—The Yak of Tartary.—The Buffalo; its diffusion over the countries of the East, and its introduction into Europe.—The Buffaloes of Africa, and the notices of travellers regarding those of the interior.—The Cape Buffalo.—The Gayal or Jungle Ox of India; its relation to the Taurine family; and its domestication in the countries of the East.—The Common or Domesticated Ox; its division into two groups, the Zebu, and the Ox of Western Asia and Europe.—Origin of the domesticated Ox.—Early domestication of the Ox.—His connection with the mythological systems of the first nations, and the estimation in which his services have been held in every age.—Natural history of the Ox; his habitudes, properties, and services.—Multiplication of the Ox in the state of liberty in the plains of South America, and the characters and habits of the emancipated herds.—The Zebus of Africa and the East.—Size and form of the Ox as influenced by climate, the supplies of food, and domestication.—Diversity of the races naturalized in the British Islands.—Form of the Ox with relation to his economical uses, . . . i–xxii.

4.—THE ZETLAND BREED.

The Zetland Breed, of Norwegian origin, and distinct from the races of the Highland mountains—Description of the Zetland Breed; its small size, soft skin, and varied colours; the precocity and milching properties of the females.—The cattle of the Orkney Islands; their mixed origin and properties.—Means of improving the races of these Islands, ... 9–10

5.—THE KERRY BREED.

Its naturalization in the mountains of the West of Ireland.—Description of the breed; its small size, power of subsisting on scanty food, and the admirable adaptation of the cows to the domestic dairy.—Diffusion of the breed over Ireland, and its value to the poor inhabitants; neglect of the breed, and the diminution of its numbers by mixture with other races.—The Dexter variety of the Kerry Breed, and its origin.—Error of neglecting the cultivation of a breed, scarcely surpassed by any other for the yielding of milk, and subsisting on scanty food, ... 11–12

6.—THE POLLED ANGUS BREED.

The cultivation of the Angus Breed in the plains and less elevated parts of the counties of Forfar and Kincardine.—Description of the breed; its conformation and properties; its colour and the absence of horns.—Improvement of the Breed, and its extension to other districts, ... 13–14

7.—THE GALLOWAY BREED.

Its naturalization in the south-western parts of Scotland; its peculiar form, and the absence of horns; its hardiness and adaptation to the countries in which it is reared.—Estimation in which it is held for the purposes of grazing, and the supplies which it affords to the markets of consumption, ... 15–16

8.—THE POLLED SUFFOLK BREED.

The cultivation of this Breed for a period unknown in the county of Suffolk and the neighbouring districts.—Description of the breed; its colour generally of a mouse-dun; the absence of horns; the defects of its form; and the admirable fitness of the cows for yielding milk.—Origin of the breed; neglect with which it has been treated; and diminution of its numbers by the effects of intermixture.—Attempts to improve it for the purpose of rendering it suited for grazing, ... 17–18

9.—THE DEVON BREED.

The Devon Breed, naturalized beyond any records in the county of Devon, and brought to its greatest perfection in the high-lands stretching along the southern side of the Bristol Channel.—Description of the breed; its light, graceful, and agile form; and adaptation beyond all other British races to the purposes of active labour.—Smallness of the females, and their deficiency in the power of yielding milk.—Defects of the breed, and the extent to which they may be lessened or removed.—The South Devon variety of the same breed.—Its larger size and less delicate form, . 19–20

10.—THE SUSSEX BREED.

The Sussex Breed, a variety of the Devon, but of coarser form and greater bulk of body.—Description of the Breed; its properties and defects; its employment for draught and adaptation to that service.—Comparison between the Horse and the Ox for the purposes of farm labour, ... 21–22

11.—THE GLAMORGAN BREED.

County of Glamorgan, and naturalization in it of a race of cattle which have assumed a common class of characters.—Difference in the size and figure of the Glamorgan cattle, as they are the natives of the hilly country, or of the lower and maritime.—Description of the improved Glamorgan Breed; its size, form, colour, the quality of the flesh, and adaptation of the cows to the uses of the dairy.—Improvement of the breed by crossing, and by adhering to the native stock.—Limited district to which the improved Glamorgans are confined, and the effects, . . . 23–24

12.—THE AYRSHIRE BREED.

The Ayrshire Breed, derived from the county of that name, and reared extensively for the uses of the dairy.—Former rudeness of the agriculture of this part of Scotland, and recent formation of the

III. THE SHEEP.—*Continued.*

The Penistone Breed, so named from the market-town of that name; derived from a limited district of coarse heaths on the confines of Yorkshire, Lancashire, and Derbyshire.—The affinity of the Penistone with the Black-faced Heath Breed; its coarse and ungainly form, and slow power of fattening, . . Pages 31–32

10.—THE OLD WILTSHIRE BREED.

The largest of the fine-woolled breeds of England,—formerly inhabiting the greater part of the county of Wilts.—Description of the Breed; the fineness of its wool; its coarse, unthrifty form, and its slow power of arriving at maturity; the rapid diminution of its numbers by crossing, and the substitution of superior races.—Notice of extinct breeds allied to the Wiltshire, . . 33–34

11.—THE DORSET BREED.

Naturalized in Dorsetshire, and other countries of the chalk.—Description of the Breed; the quality of its wool, and the faculty of the females of receiving the male at different seasons, and their employment on this account for the rearing of house-lambs; the resemblance in the form of this breed to the Spanish Merino; the diminution of its numbers by the effects of intermixture.—The Pink-nosed Somerset Breed; a variety of the Dorset, but exceeding it in size.—The Isle of Portland Breed, likewise of the family of the Dorsets, but of diminutive size, and confined to a limited district, ... 35–36

12.—THE MERINO BREED.

The climate of Spain, and the diversity of its soil and surface.—The foreign invasions and civil convulsions of the country.—The dominion of the Phœnicians—of the Romans—of the Goths—of the Moors. The ultimate restoration of the country to the power of the Christians, the final expulsion of the Moors, and the progressive decline of arts and industry.—Notices of early writers regarding the fine woolled Sheep of Spain.—The classes of Spanish Sheep. The Merino race—its origin and characters—the migratory and stationary flocks, and their management.—The acquisition of the Merino Breed by other nations, and the history of its naturalization in different countries —in Sweden, France, Saxony, Prussia, Austria, and the British Islands. Account of its introduction into England, and of the means adopted for its cultivation.—Unfavourable result of the experiments,—whether in maintaining the breed in its pure state, or mingling it in blood with the native races.—Character of the naturalized Merinos—their value and defects.—Extension of the breed to New Holland—its prodigious multiplication, the delicacy and softness of the fleece, and the great importance of its production in these colonies to the manufacturing interest of Britain, ... 37–46

13.—THE RYELAND BREED.

Historical notices of the district of the Ryelands, and the origin of the race.—The fineness of its wool—exceeding that of any produced in the British Islands.—Description of the Ryeland Breed. Experiments on crossing it with the Spanish Merinos, and their failure.—Experiments on crossing with the native races, and the results.—Progressive diminution in the numbers of the breed, and its near extinction, ... 47–48

14.—THE SOUTH-DOWN BREED.

Notices of the Short-woolled Breeds of England; and the diversities produced by food, climate, and place.—Account of the Downs of Sussex, and the indigenous sheep.—The modern South-Down Breed; its habits, external form, and the nature of its wool.—The progressive improvement of the breed; and the changes produced on its form, size, and characters.—The wide diffusion of the breed, chiefly in the dry and calcareous parts of England; its mixture with the native races of the forests and commons, and the beneficial results, ... 49–52

§ WOOL.

Physiological description of the Wool of sheep, and the distinction between the hair and wool of the fur of animals.—The difference in the character of the wool of different races of sheep, and the value of particular races dependent on the texture, fineness, felting quality, and other properties of the fleece.—The distinction of wool into Long and Short.—The property of felting, arising from the form of the filaments, and the economical value of different kinds of wool dependent upon this property.—History of the Woollen Trade of England; the laws for promoting it, its progress, and vast importance as a branch of national industry, . 52–58

15.—THE OLD LINCOLN BREED.

Distinction between the Short and Long-woolled Breeds of Sheep of the British Islands.—The Old Lincoln Breed; its derivation from the fens and marshes of Lincolnshire and the adjoining districts.—Account of the Breed, and of the changes which it has undergone; its coarse form, and the produce of its wool, exceeding in quantity that of any European race of sheep.—The modern Lincolnshire variety and its properties, ... 59–60

16.—THE ROMNEY MARSH BREED.

Description of the alluvial district of the Romney Marsh.—The great numbers of sheep which it contains, and the characters of the ancient race.—The changes produced in it by a mixture with the blood of the Long-woolled Sheep of the Midland Counties.—The modern breed of the Romney Marsh.—Comparison between the Romney Marsh and New Leicester Breeds, and the effects of the latter in modifying the form and characters of the Sheep of the Marsh, ... 61–62

17.—THE OLDER LONG-WOOLLED BREEDS OF THE INLAND DISTRICTS.

The districts occupied by the Older Long-woolled Breeds.—The Old Teeswater Breed; its distinctive characters, and the changes which it has undergone.—The Old Warwickshire Breed.—The Long-woolled Breeds of the western counties.—The Long-woolled Breeds of Devonshire, and the changes produced in them by admixture with the improved race of the Midland Counties.—The Long-woolled races of Ireland; their ancient characters, progressive improvement, and present condition, ... 63–64

18.—THE COTSWOLD BREED.

Account of the district of the Cotswold Hills, and notices of their former occupation by a race of fine-woolled Sheep.—The modern Breed of the Cotswold Hills, producing long wool, and therefore distinct from the former race.—Opinions as to the time and mode of its introduction.—Description of the Older Long-woolled race of the Cotswold Hills; the changes which it has undergone by admixture with the New Leicester, and its present condition and economical value, ... 65–66

19.—THE NEW LEICESTER BREED.

Experiments on Breeding by Robert Bakewell of Dishley, in the county of Leicester; his principles and practice of breeding as applied to the Sheep; his eminent success and ultimate formation of a race of distinct characters termed the Dishley or New Leicester Breed.—Question as to the original of the breed of Bakewell.—Description of the New Leicester Breed; its size, form, wool, and the property of arriving at early maturity of muscle and fatness. The practice adopted by Bakewell, his contemporaries and successors, of letting rams for hire, and the effects in preserving the purity and extending the influence of the new breed.—The high economical importance of the breed; its general diffusion, and powerful influence in improving the long-woolled sheep of the country.—Examination of the principles of breeding established by Bakewell, and the degree in which they can be applied to practice in the case of the Sheep, ... 67–70

Summary and Classification of the Breeds of Sheep naturalized and cultivated in the British Islands, . . . 71–72

THE OX.

HISTORY.*

The important Family of which the common Ox may be regarded as typical, divides itself into three groups,—the Bisontine, the Bubaline, and the Taurine. The Bisons inhabit both the Old and New Continents, and are distinguished by round, smooth horns, and a musky odour which exhales from the skin. The Buffaloes are characterized by angular horns, and a fainter odour of musk, and are natives of the warmer regions of Asia and Africa. The Taurine group, comprehending the common Ox and its different races, forms the most important division of Bovidæ.

The European Bison, *Bison Europæus*, which once abounded in the great forests of Europe, is a fierce and powerful creature. He is the βισων of the Greeks, the Bison of the Latins, the Wisent of the Older Germans, the Zubr of the Poles, and probably the Zb of the Arabians. He formerly abounded in the Hercynian and Sarmatian forests, and was regarded as the largest of the quadrupeds indigenous to Europe. But, like many animal species, the great Bison of Europe seems doomed to perish under a condition of countries that is no longer suited to him. He merely lingers in a portion of the vast regions of forest which he once inhabited. He is found in herds in the marshy forest of Bialowieza near Varsovia, where he is protected by the Government of Russia. He does not wander beyond the woods where he yet lingers, because it is probable the sustenance which suits him is not to be found in another habitat; and even in this retreat, he would probably cease to exist, were it not for the care used in supplying him with food during the snows of winter.

Bisons are still found in considerable herds in the woods of the Caucasus. According to the recent travels of NORDMAN, they exist in the greatest numbers from the Kuban to the Psib. In some places they inhabit the mountains in summer; in others, they are met with in swampy places all the year round. They are killed by the natives, and their horns, formed into drinking cups, are used by the wild chieftains of the country. A large kind of Bison is likewise found in British India; but whether it is identical with the Bisons of Western Asia and Europe, or a distinct species, has not been determined. It is termed Gaur by the natives, and by some naturalists *Bos gaurus*. It has been hitherto found in the thick jungles in the western confines of the provinces of Bengal and Bahar. It is often killed by British sportsmen, but none of the young has yet been captured. The villagers have a superstitious terror of these creatures, and cannot be persuaded to go in search of the calves; believing that, if the Gaurs are in any way molested, they will attack the persons disturbing them, and never quit them till they have put them to death.

The European Bison is supposed to have diminished in size and strength from the period in which he ranged at will over the countries which were proper to him; but he is still a large animal, equalling in stature the domestic oxen of the countries he inhabits. His head is broad, and the forehead bulging; the horns are round, thick, black, and of a hard consistence, and larger in the male than in the female: the eye is small, and its usual character is placid; but when the animal is roused to anger, the pupil narrows to a slit, the coat becomes inflamed, and all the expression indicates blind fury and madness. The tongue is covered with tubercles, and, together with the lips, gums, and palate, is blue. The trunk and hinder part of the body are relatively slender, the shoulders thick, and in the adult male the spines are so lengthened as to form withers. The skin is exceedingly thick, and emits the odour of musk. The trunk, down to the knees, is covered with woolly hair, the top of the head, neck, and shoulder, with long hair mixed with frizzled wool, forming a mane, and from the chin to the chest is a kind of beard. The tail comes below the

---

* The accounts which have been already given in this work of the Sheep and the Hog, have been each preceded by a General History of the Genus in which the animals are comprehended. In the case of the Ox this plan was not adopted, but it is now conceived to be proper to supply the deficiency. It will be understood, therefore, that the Natural History of the Ox Family to be now given, ought to have preceded the account of the Wild or White Forest Breed contained in the first number of the work.

hock, and at its extremity, is furnished with a brush of long bristly hairs. The female has smaller horns than the male, and less elevated withers. Though a large animal, she has an udder smaller than that of the least of the domestic Cows.

These creatures are ferocious, strong, and fearless of enemies. They hold their heads low, are swift of foot, but are soon worn out, seldom running farther than one or two English miles. They swim with facility, and delight to cool themselves in water. Their favourite places of resort are thickets near the swampy banks of rivers. In the warmer season they frequent shadowy spots; in winter they keep quiet during the day, in the thickets of firs and pines, browsing only at night, and finding sustenance on the bark of young trees. The thrusts of an old bull will overturn trees of five or six inches diameter. An old bull, we are informed, is a match for four wolves, though packs of the latter animal will hunt down a full-grown bull when alone.*

Like all the Bovine race in the state of nature, they avoid the dangerous approach of man. When suddenly come upon, they rush upon the intruder with fury. When taken young they become used to their keepers, but resent the intrusion of strangers, and seem incapable of resigning their natural wildness and submitting to domestication. They abhor the domestic races, shunning them, or goring them to death. Four young ones, captured in the forest of Bialowieza, afforded to M. GILBERT, who had long resided in Poland, opportunities of observing their habits. They refused to take the milk of the cow, but at length submitted to be suckled by a she-goat, raised on a table to the level of their muzzles. When satisfied, they sometimes tossed the nurse and the table to the distance of several feet. The two males died within a month. The females survived; they became docile and obedient to their keeper, licking his hands, rubbing his body gently with their heads and muzzles, and coming to him when they heard his voice. They hated the sight of scarlet, and drove all the common cows from their pastures. They came into season at the age of two years, and rejected the approaches of the domestic bull.

The forest in which these creatures are preserved, is the largest and most ancient in Europe. It contains about 352 geographical square miles, of which about one-sixth part consists of rushy swamps, and is intersected by numerous rivulets, and by one considerable river. The number of Bisons consists, at present, of about 700: they are protected by the Government, and are only suffered to be killed in small numbers, by the especial permission of the Emperor. When the wolves are to be hunted, it is done with caution, and by a small number of dogs; and any noisy occupations which might disturb the animals, are prohibited within the forest.†

From the habits of this creature, his indocility, and the instinctive aversion to domestic races, it will appear that he is not one of those animals which Providence has ordained to yield up their services to man, and become an instrument of good to his race. He is rather to be numbered amongst those which are destined to disappear before the progress of civilization and the arts. By a rare chance, human interference has saved the wreck of the species in Europe from that destruction which awaited it; but this can only be for a season, and the time will doubtless come, when the great Bison of the European woods will be numbered with those extinct species, whose bones alone remain to testify their former existence.

The next to be mentioned of the Bisontine group is proper to another hemisphere, and was only made known to us when the rich savannahs and boundless forests of the Western Continent revealed their living inhabitants to the wondering eyes of European travellers. The American Bison, *Bison Americanus*, commonly, but erroneously, termed a Buffalo, resembles the Bison of Europe in his general form, and in some of his habits. He has fifteen pairs of ribs, whereas the European Bison has but fourteen. His head is large; his forehead is broad and convex; his horns are short, thick, and black; his eyes are small, clear, and piercing, with a placid expression, except when he is irritated, and then the expression turns to that of ferocity and rage. He is very bulky in front, and has large withers, to which powerful muscles are attached to support his ponderous head. The back droops from the withers, and the posterior part of the body is meagre and thin. On the summit of his head there is an abundance of long woolly hair, which hangs over the face, the ears, and the horns. The throat, the neck, the shoulders, and the breast, are covered with long hair; the back, and the rest of the trunk, are covered with short hairy wool. The colour of his fur is, in summer, a light brown, in winter a brownish-black. The tail is about eighteen inches long, terminated by a tuft of hair. The female is smaller than the male, and has shorter horns, and less of hair on the anterior parts. The male, when fully grown, has been sometimes found to weigh 2000 lb., though the average weight is said to be 12 or 14 cwt.

This is a very strong and agile creature, making its way with great swiftness through tangled brushwood and heaps of snow. He is more irritable than dangerous, and flies from the sight of the hunter. When attacked by large dogs, he defends himself with courage. If his enemies catch him by his shaggy coat, he tosses them overhead in an instant. Should they succeed in pinning him by the nose, after the manner of attack by the bull-dog, he spreads his fore-legs, and brings his hind-feet forward till he

* WEISSENBORN, Magazine of Natural History, June 1838.

† WEISSENBORN.

HISTORY.

treads the dog beneath him. He then tears his head loose, regardless of the wound, and crushes his enemy beneath his feet. These animals are eminently gregarious and migratory. They feed on the herbage of plains, and the sedgy plants of morasses and swamps. They are fond of salt, and travel vast distances to the saline springs, which yield this condiment: they swim with ease, crossing the most rapid rivers: they delight in coolness and moisture, bathing in pools and lakes during the heat of summer: in the winter season they dig the snow with their feet, that they may reach the plants beneath. They inhabit the temperate parts of North America, congregating in herds, in the woods and vast plains and savannahs, where they feed. In summer they migrate northward, and then it is that they are seen in those prodigious herds that strike the traveller with wonder. The countless multitude seems to darken the plain, and stretch to the horizon. Captains LEWIS and CLARK, on one occasion, mention that the moving mass which they beheld could not be less than 20,000 in number. At another time, they saw a herd crossing the Missouri, which, though the river was a mile in breadth, stretched across it from side to side as thick as the animals could swim.

The paths they make to the pools of fresh water or saline springs which they frequent, are often as numerous and trodden as the highways of a peopled country; and all travellers in the western countries speak with amazement of the traces of their numbers. They retire to the boundless wilds of the interior before the progress of the settler, and from the persecution of the chase. Formerly they were found to the eastward of the Apalachian Mountains, but they are now driven to the remoter wilderness towards the Ohio, the Missouri, and west of the Mississipi on the south. They are the subjects of incessant attack and pursuit by the Indian tribes, who feed upon their flesh, and make cloaks, sandals, and other fabrics, of their hides. They are often slaughtered in vast numbers together. Sometimes they are driven in crowds into ravines, and to the edges of precipices, where they are killed by lances and other missiles. Sometimes, the grass being set fire to, the herd is encompassed and thrown into confusion, and all other means which their savage persecutors can devise are employed to entrap and destroy them. This frightful carnage cuts off by degrees the sources of the future supply, and the time may come when this marvel of the American wilderness will be as rare to be seen as the Bison of the Lithuanian forests.

Of the fitness of this creature for domestication no doubt can exist. He is the native Ox of America; and had the country been inhabited by civilized communities in place of tribes of savage hunters, a creature so formed by Nature for the service of man could not have remained unsubdued. He is far more docile than the Bison of Europe, and manifests no antipathy to the domestic race. There is reason to believe that he would breed with the latter, but how far the mixed progeny would be fruitful with one another, has not, it is believed, been determined. He is tamed with great facility, and manifests no ferocity. Numbers are sometimes separated from the herd by the back-woodsmen of the United States, driven long journeys, and brought in perfectly subdued to the American towns to be disposed of to the inhabitants. It is said that they are often kept on the farms of Kentucky, where the objections to them are, that the cow yields a small quantity of milk, and of a musky flavour; and that she is restless, leaping the barriers intended to confine her, and enticing the other cattle to follow her to the woods. The flesh of the animal is reckoned good, and in an especial degree the tongue, and fleshy hump upon the shoulder. The hair has so much of the woolly character, that it may be woven into cloth, or formed into hats by the felting process: the skin is very thick, but too porous for leather, though, with the wool upon it, it forms a warm covering, used by the Indians for blankets and cloaks. But the chief value of the domesticated Bison, it may be believed, would be for the purposes of labour, for which his agility and the great strength of his shoulders seem peculiarly to adapt him. A farmer on the great Kenhawa, we are informed by Mr BINGLEY, broke a young Bison to the yoke; the animal performed his work to admiration, and the only fault his master had to find with him was, that his pace was too quick for the steer with which he was yoked.

Beyond the range of the American Bison, and stretching into regions of everlasting ice, is the habitat of another species of Bison, suited to other conditions of temperature and food. The Musk Ox, *Ovibos moschatus*, first appears about the 60th degree of northern latitude, and thence is found to the very extremity of the American continent, wandering in search of food to the dreary islands beyond it during the brief space of the arctic vegetation. This creature is about the size of the little Ox of the most northerly Highlands of Scotland. He has no muzzle, or naked space around the nose and lips, like the Common Ox and Bison, but like the Sheep he is covered to the lips with hair; and hence the genus has been termed *Ovibos*, as partaking of the character of the Ox and the Sheep. His horns, broad at the base, covering the upper part of the forehead, and bending downward and then upward, enable him to defend himself against the Bear and the Wolf. To protect him from the cold, he is enveloped from head to foot in a dense fur, consisting partly of hair and partly of wool. The long hair almost trails to the ground, and underneath is a thick coat of delicate wool, of which, fabrics like the finest silk may be formed. He has short muscular limbs and hoofs like those of the Rein-deer, and he is endowed with great activity, scaling the icy rocks of the country when pursued. He feeds partly on grasses and partly on lichens, and he is usually seen browsing in small herds or bands. His skin emits the strong odour of musk. Though suited, perhaps, to perform the same services as the Rein-deer, he has never been subjected to

servitude. He is hunted by the rude Indians for his skin and flesh, which last is hard, lean, and tainted with the flavour of musk. The Esquimaux, whose country he inhabits along with the Rein-Deer, cover their heads and faces with his long hair, to defend them from the bites of musquitoes. They eat his flesh, and devour the contents of his paunch, which is filled with the lichens and other plants on which he feeds.*

A like form of the Bison seems to have extended westward into Asia, by Behring's Straits, along the shores of the Icy Ocean. But the osseous remains of this animal alone exist, and naturalists have not determined whether he was identical with the species of America, or distinct from it. His habitat shows that he was, like it, formed to brave the rigour of the coldest climates of the globe.

Proceeding southward towards Central Asia, another species of the Bisontine family appears, with habits which adapt him to the services of man. This creature is the Yak of the Tartar nations, the *Bos grunniens* of modern naturalists, so named on account of the sound of his voice, which, like that of other Bisons, resembles the grunting of the Hog. This animal is found both in the wild and the domestic state, extending from the mountains of Thibet, through the vast countries of the Kalmuc and Mongollian nations, through China to the Pacific Ocean, and even to Hindostan. In the wild state his chief habitat is the chain of snowy mountains separating India from Tartary.

This species of Bison is about the size of the lesser breeds of Oxen in Britain, but he is of a stout form, with short muscular limbs. He has fourteen pairs of ribs like the European Bison, and the anterior spines of his back are so lengthened as to form withers. He is armed with short and smooth horns, which frequently are wanting: they are black, or white, or white tipped with black, and bend upwards at the points. His muzzle is narrow, and covered with hairs, approaching in this respect to the character of the Ovibos. He is thickly clothed with hair and wool, to protect him from the cold of the elevated plains which he inhabits. On the forehead the hair is short and curling; on the back long, pendent, and mixed with wool; and along the spine runs a kind of mane. The tail reaches to the heels, and is covered with long, fine hairs, giving to the animal the aspect of an ox with a horse's tail: hence he has been sometimes termed the Horse-tailed Buffalo. The colour of the hair varies in the domesticated race; it is usually black, or brownish-black, but other parts of the body are white, as the legs, the back, and the fine and graceful tail. The height of the animals at the withers is said to be about three feet ten inches, but there must be great variations in size, for, in the British Museum, there is preserved the tail of a Yak which measures six feet in length.†

The Yaks, in their state of nature, seem to prefer the woods of mountains to the valleys and open plains, and, like other Bisons, to seek the neighbourhood of rivers, lakes, and pools; and this fondness for an aquatic situation they retain in the domestic state, wallowing in pools when occasion offers, and swimming when they come to rivers. They have a somewhat gloomy aspect, and are said to be suspicious of strangers, and are even dangerous to be approached. Thus travellers, on advancing to the Tartar camps, have seen the herd approach as if to make an attack, whisking their long tails, and tossing their heads in a menacing manner.

This species is the only kind of cattle cultivated by the Kalmuc and Mongollian tribes, and even by many of the Western Tartars. It seems to be well suited to the condition of those elevated plains, where continual changes of place are required to afford fresh pasturage for the flocks and herds of the communities. The Yaks are well suited for these frequent journeyings, being hardy, sure-footed, and capable of bearing burdens. The natives make tents and ropes of their hair, and coverings of their skins. The milk of the female is plentiful and good, yielding excellent butter. Thus the Yak is a valuable animal in those countries of migratory herdsmen, yielding at the same time food and the means of transport. A profitable trade, too, is pursued by the Tartars in the white tails which many of the oxen produce. These tails are dyed of various beautiful colours, and are in request over all the East. They form the standards of the Mongols, Persians, and Turks: they are used in India and Persia as chouries or fly-fans, for which purpose they are supplied with ivory handles finely carved: they are used as ornaments for the harnessing of elephants and horses: the Chinese dye the hair of a beautiful red, and form it into tufts for their bonnets.

The next in order of the Bovidæ is the Bubaline group, distinguished by a narrow convex forehead, higher than wide, and by angular, not rounded horns. The general aspect of these animals is clumsy, their limbs are strong, their muzzle is broad, their ears are large and pendent; their hide is thick, usually coal-black, partially covered with hairs, and in the warmer countries nearly destitute of hairs. They are fond of water, and, like Hogs, wallow in moist and miry places. The female has four mammæ, but two sometimes are not developed.

Of Buffaloes in the state of nature, there seem to be more than one species which have not been sufficiently described. One of these, inhabiting the forests of India, is of vast size and strength, with horns of enormous length. No live specimen of this

* Richardson, Faun. Bor. Amer.

† Griffith's Animal Kingdom.

HISTORY.

animal has yet been brought to Europe, but the head and horns have been obtained, and are to be found in various museums in England. These horns are of a crescent form, and have been obtained six feet in length, measuring a foot and a half in circumference at the base, and covering from point to point a space of ten feet. The skin of this animal is covered with hair, in which respect it differs from others of the genus, and the tail extends no lower than the hock. It is surprising that various naturalists should maintain that this species is identical with the Common Buffalo. The widest differences of external form must be disregarded in discriminating species, if such an opinion can be sustained. This gigantic creature has been seen and killed by British sportsmen, and is certainly distinct from the Common Buffalo. He is the *Bos Arni* of SHAW; the Gigantic Arnee of travellers and writers. Another variety of Arnee is more abundant, and congregates in herds. His horns are very long, and have likewise a crescent form. Droves of them are to be seen floating in the Ganges, suffering themselves to be carried by the current to the creeks and islands where they feed. But whether this creature differs from the other in any other respect than age, has not been determined.

The Common Buffalo, *Bos bubalus*, LINN., inhabits the marshy forests of India. These creatures are found both in the wild and the tame state throughout Hindostan and other countries of the East. They run with their heads held in a horizontal position, so that their horns rest upon their shoulders. Though more or less independent in their habits, they yet assemble in herds for mutual protection, or when in search of food. They avoid the short herbage of hills, preferring the coarser plants of moist woods and marshy plains. They delight in water: they float upon the current, and cross without hesitation arms of the sea and the broadest rivers. They are seen to dive as they swim, and drag up by their horns the aquatic plants on which they feed. In the domestic state, they retain the love of moist situations: they haunt the banks of rivers; they love to wallow in pools and swamps; and will lie for hours in mud, or sunk, their heads alone visible, beneath the water of pools. Whole herds are to be seen crossing the Euphrates or the Nile, their keepers directing them, and stepping from back to back as on a floating raft. Their sense of smell is acute, and they are persevering in pursuit of assailants. They are fierce when irritated, and will not turn from their enemies. Even the Tiger dreads their formidable strength. When brought to fight with other animals in the arena, to afford a cruel pastime to Indian princes, the courage of the Tiger quails the instant the Buffalo enters the arena: he would willingly shun the combat; while the Buffalo, excited to fury at the sight of his natural enemy, bends his head level with the ground, that his horns may be in a position to strike, and rushes, notwithstanding the wounds he receives, on his terrible opponent. These powerful animals seem to be insensible of fear. When they fight, they strive to lift their enemy on their horns, and when he is thrown down, to crush him to death with their knees. Their fury then seems to be insatiable: they trample on the mangled body of their victim, and return again and again as if to glut their vengeance. They have a memory tenacious of wrongs, and will resent them when occasion offers. Instances are known, when, after having been brutally forced by their keeper to tasks beyond their strength, they have seized the first opportunity to rush upon their tyrant and put him to death. Like all the Bovine family, they are roused to fury by the sight of scarlet and bright colours.

The Buffalo is a creature of vast strength, which, in the state of servitude, he exercises in the pulling of loads and the bearing of burdens. In this respect he far surpasses any other of the Bovine family. When yoked in rude waggons and cars, he drags them through miry tracks, swamps, and shallow rivers, with a force which no other animal but the Elephant could exert, and performs tasks of continued labour, under which the strongest horses and bullocks would sink down and die. His pace, however, is measured and slow, and unless he is cooled and largely supplied with water, he becomes feeble, and subject to mortal diseases. He may be termed the Camel of a country of marshes, but he would perish under the toils and thirst of an arid country. Though retaining, in the state of servitude, the sullen aspect and suspicious character which are natural to him, he yet can be reduced to complete subjection. He is managed by a ring, or simply by a rope passed through the cartilage of his nose. Much of his acquired docility depends upon education and treatment. In Eastern countries, where he is used with gentleness, and carefully instructed, he manifests an intelligence in which no other oxen surpass him, and becomes so gentle, that he may be guided by a child in all the labours of the field.

The flesh of the Buffalo is hard and coarse, and could not be endured in countries where a value is set upon delicate animal food. His skin is esteemed for its thickness and durability, surpassing greatly in this respect the hide of the Ox. It is so tough that it is used for defensive armour by the Javanese and other people of the Indian islands. The milk of the female is nutritive and well tasted, but she yields it in smaller quantity than the common cows of Europe, and becomes sooner dry when separated from her young, for whom she manifests the strongest affection.

The Buffalo is extensively domesticated in India, Siam, China, and all the warmer countries of the East. He extends westward through Persia and Arabia to the shores of the Red Sea and the Hellespont. He spreads from Egypt along the southern coasts of the Mediterranean. He is found in Greece and the islands of the Archipelago, in Spain, Italy, Hungary, and in part of the Russian dominions in Europe.

HISTORY.

In the warmer regions of the East, the Buffalo has been domesticated beyond all memorial of tradition and history. But his introduction into Europe did not take place until an era comparatively recent. He was first known to the Greeks, and then only by description, on the conquest of Persia by Alexander the Great. ARISTOTLE correctly describes him as being of a black colour, and as having a strong body, and thick horns lying backward: but the Βουβαλος of ARISTOTLE, as well as the Bubalus of the early Roman writers, was of the Antelope family, and distinct from the modern Buffalo. From the period when the Buffalo of the East was first referred to by the great naturalist of Greece, nearly a thousand years elapsed before he was introduced as the beast of labour into Europe. It has been supposed that the Huns and other barbarians of the East brought him with them when they migrated for settlement and conquest towards the Roman States; in which case he may be supposed to have been first introduced into Thrace and other countries of the Danube. WARNEFRIED states that Buffaloes appeared in Italy in the year 596; and some of the earlier Monkish chroniclers refer to them with a sort of horror, as a strange kind of Oxen brought from Pagan lands. The Buffalo has been long in use in Egypt, though it does not appear that it was cultivated by the early Egyptians. Some suppose that he was not introduced into Egypt until after the conquests of the Saracens; but it is equally probable that he was obtained from the countries of Africa where he is found in the state of liberty. The Arabian Mahommedans refuse to eat of the flesh of the Buffalo, on account, it may be believed, of his resemblance to the Hog. They have a strange tradition that the Hog and the Buffalo were the only animals whom the Prophet was unable to convert to the true faith!

Of the European countries, Italy is that in which the Buffalo is the most largely used as the beast of labour and the assistant of the husbandman. He there forms the riches of the poor inhabitants, who feed upon his milk and flesh, and use him in all the labours of carriage and the fields. He finds a fitting habitation in the pestilential swamps with which this beautiful country is defaced. Vast herds of them are seen grazing in the wild and swampy plains of Calabria, in the Pontine Marshes near Rome, and in other places along the shores which the deadly malaria renders nearly unfit for human abode. In such cases the Buffaloes live almost in the state of nature, under the guidance of armed herdsmen, who acquire by habit a wonderful command over them. Often they are brought to Rome to be baited in the public shows by trained combatants, who exhibit surprising feats of courage and address.

The Buffalo owes his general diffusion in the domestic state to his hardiness, to his power of subsisting on coarse food, and to his great strength and fitness for labour. It becomes a question, whether it would be expedient to carry him beyond the countries in which he is now naturalized, to others more distant, as France, Holland, and England. The question, it is believed, must be answered in the negative. The Buffalo is really the creature of the warmer countries, and his superiority over the domestic Ox continually diminishes as we arrive at countries where the common grasses become abundant. He is in all cases, indeed, to be preferred for physical strength and endurance of labour to the Ox, but his pace is slow, and his action sluggish. In this country he cannot in any degree be compared to the Horse for the active labours of the road and farm, while the flesh would be in no demand, and the milk yielded by the cow would be too inconsiderable to be of value for the dairy.

The Bubaline family likewise appears in Africa, and with such modifications of form as the peculiar physical condition of this vast continent produces in so many animal species. Although it may be the Asiatic Buffalo which has been domesticated in Egypt, and perhaps along the southern shores of the Mediterranean, yet it follows in no degree, that species or varieties proper to that continent have not been subdued. BRUCE informs us that Buffaloes exist in great numbers in the woods of Abyssinia. DENHAM and CLAPPERTON found them in the kingdom of Bornon, on the Lake Tchad, in the heart of Africa, and thence innumerable traces of them appear through all the intermediate countries to the Atlantic. Captain LYON mentions three kinds of Buffaloes which are found in immense numbers in the Kingdom of Fezzan; the first, an animal about the size of an Ass, with large head and horns, a reddish hide, and large bunches of hair hanging from each shoulder to the length of eighteen inches or two feet, and of a fierce disposition; the second about the size of a cow, red in colour, slow in its motions, and having large horns; and the third a white Buffalo, lighter in shape, and more active in its motions than the others, and so shy and swift that it can rarely be obtained. Unfortunately the gallant traveller gives us no details, and probably merely speaks from common reports. The information afforded by other travellers regarding the Buffaloes of the interior is alike defective. We merely learn that these animals abound throughout the forests of Northern and Central Africa; but of their distinctive characters, no information satisfactory to the naturalist has yet been afforded.

There is one African species, however, of which we have authentic accounts, namely, the Cape Buffalo, the *Bos Caffer* of SPARRMAN, and admitted by that name into the catalogues of naturalists. This formidable animal is found at the Cape, and extends to an unknown distance into the interior. He bears a distinct affinity in habits and character with the Buffalo of Asia, but is yet clearly marked by characters of his own. He is a large animal, being about five feet and a half in height at the shoulder, and nine feet long, having short muscular limbs, and a ponderous head. His horns are long, thick, and black, spreading over the whole forehead until the bases nearly touch. The root of these rugged horns, overhanging the red and piercing eyes of

HISTORY.

the animal, give him a sullen and malignant aspect. His ears are shaggy and pendent, and about a foot in length, and are frequently found to be jagged and rent by the sharp spines of the dense and tangled brushwood through which he forces a passage. The Hottentots believe that the animals belong to demons, and that the rents in the ears are the marks by which these supernatural beings distinguish their own cattle. The hide is thick, black, tough, and covered with wiry hairs. On the throat, and along the dewlap, is a beard of stiff hairs, and on the neck and spine a scanty mane: the tail is bare, with a tuft at its extremity.

These animals dwell in small herds in woods and thickets, though sometimes they unite in larger bodies, as of 150 or more together. They delight in moisture, passing hours in pools of water, and rolling themselves in mud. They are described by travellers as savage, treacherous, and vindictive. The bull, it is said, will lurk behind the covert of thickets, and rush on the unwary traveller, whose only hope of safety is to reach a tree, should one happily be near. He cannot save himself by flight, for the furious brute quickly overtakes him, throws him to the earth, tramples upon him with his feet, and crushes him to death with his knees. Nay, it is said that, after having mangled his victim, the creature retires to a distance, and then returns again and again with increased ferocity, as if to gratify by repetition his thirst of vengeance. The account of the animal's lurking behind thickets is doubtless incorrect, for it is not the nature of herbivorous animals to prey on other creatures from a desire of blood. And with respect to his treachery and cruelty, it is to be asked—who, in the eye of humanity and reason, is the most treacherous and cruel, the traveller and stranger who steals upon the lonely animal in his native haunt to shed his blood, or the victim who uses the powers which Nature has given him to protect himself from slaughter?

SPARRMAN describes an encounter with several of these animals on the Great Fish River. The party advanced within twenty yards of one of them, when, actuated in some degree by their fears, they discharged their pieces nearly at the same time. The Buffalo, who had just turned his head round as if about to assault the intruders, fell on the discharge of the pieces, but, rising again, ran to the thickest part of the wood. Supposing that the shot was mortal, the travellers, in their hurry and ignorance of the danger, followed the animal into the thicket; but they found, in the sequel, that the balls had only struck him on the spine and stunned him, and been shivered to pieces on the bones. The travellers, now joined by their Hottentots, endeavoured to find out his retreat in the vale below; but the animal, having recovered his surprise, came forth of his own accord to the skirts of the wood, and faced his assailants, who, happily for them, had the advantage of the higher ground. Three shots were instantly fired, and one, entering the belly, proved mortal. The Buffalo again retreated to the shelter of the vale, dyeing the ground and bushes all the way as he went with his blood. The hunters followed with the utmost caution through the thin and pervious part of the thicket. Again their victim advanced to make an attack, but one of the party, from the place where he was posted, had the fortune to lodge a shot in the lungs; yet still the wounded animal had the strength to make a circuit of 150 paces before he fell. "During his fall, and before he died," continues the narration, "he bellowed in a most stupendous manner, and this death-song of his inspired every one of us with joy, on account of the victory we had gained: and so thoroughly steeled is frequently the human heart against the sufferings of the brute creation, that we hastened forward to enjoy the pleasure of seeing the Buffalo struggle with the pangs of death. I happened to be foremost amongst them, and I think it impossible for anguish, accompanied by a savage fierceness, to be painted in stronger colours than they were upon the face of this Buffalo. I was within ten steps of him when he perceived me, and, bellowing, raised himself suddenly again upon his legs." The traveller was so terrified, that, hastily firing his piece, his shot missed the huge animal before him, and he precipitately fled. But it was all over with the poor Buffalo; he had made his last effort; he had left to his conquerors the happiness of having shed his blood, by means of deadly weapons, which all the vast strength and noble courage with which Nature had endowed him could not enable him to withstand; he had left them the privilege of prating of their courage, philosophy, and love of nature, and of his malignity, cruelty, and vindictiveness.

The same and other travellers give numerous accounts of their encounters with these strong and fearless creatures. M. THUNBERG informs us, that, when travelling in Caffraria, he and his companions had just entered a wood, when they discovered a large old Buffalo, lying quite alone in a little space free from bushes. The animal no sooner observed the guide, who went first, than he rushed upon him with a dreadful roar. The man was able to turn his horse quickly round a large tree, when the furious beast rushed upon the next of the party, and gored his horse so dreadfully in the belly, that he died soon after. The two men fled to trees, and when the furious creature rushed on towards the next of the party, a horse without a rider chanced to be in front; the Buffalo attacked him with such fury, that he drove his horns through the horse's breast, and out again through the very saddle. The horse was thrown to the ground with dreadful violence, and instantly died. THUNBERG, coming up at the moment, found himself in the way of the enraged animal, but, from the narrowness of the path, he had no room to turn. He abandoned his horse, and took refuge in a tree. But the Buffalo had now done: on killing the second horse, he turned suddenly about and retreated to the covert.

HISTORY.

Some Europeans at the Cape, in chase of one of these animals, pursued him into a narrow path. He turned round, and rushed upon a man of the party, who plunged into the stream and swam off. In an instant the Buffalo followed, and was close upon him, when the man, to save himself, dived. He dipped down overhead, and the Buffalo for the moment lost sight of him, and swam toward the opposite shore, three miles distant, and would have reached it, but for a shot from the gun of a ship which chanced to be lying at a little distance.

The following incident is recorded in a periodical work, on the authority of a Dutch-African farmer, who had been a witness of the scene fifteen years before. "A party of boors had gone out to hunt a troop of Buffaloes, which were grazing in a piece of marshy ground, interspersed with groves of yellow wood and mimosa trees, on the very spot where the village of Somerset is now built. As they could not conveniently get within shot of the game without crossing part of the valei or marsh, which did not afford a safe passage for horses, they agreed to leave their steeds in charge of their Hottentot servants, and to advance on foot, thinking that if any of the Buffaloes should turn upon them, it would be easy to escape by retreating across the quagmire, which, though passable for man, would not support the weight of a heavy quadruped. They advanced accordingly, and, under cover of the bushes, approached the game with such advantage that the first volley brought down three of the fattest of the herd, and so severely wounded the great bull leader, that he dropped on his knees, bellowing with pain. Thinking him mortally wounded, the foremost of the huntsmen issued from the covert, and began reloading his musket as he advanced, to give him a finishing shot. But no sooner did the infuriated animal see his foe in front of him, than he sprang up, and rushed headlong upon him. The man, throwing down his empty gun, fled towards the quagmire; but the savage beast was so close upon him that he despaired of escaping in that direction, and turning suddenly round a clump of copsewood, began to climb an old mimosa tree which stood at one side of it. The raging beast, however, was too quick for him. Bounding forward with a roar, which my informant (who was one of the party) described as being one of the most frightful sounds he ever heard, he caught the unfortunate man with his horns, just as he had nearly escaped his reach, and tossed him in the air with such force that the body fell, dreadfully mangled, into a lofty cleft of the tree. The Buffalo ran round the tree once or twice, apparently looking for the man, until, weakened with loss of blood, he again sunk on his knees. The rest of the party then, recovering from their confusion, came up and despatched him, though too late to save their comrade, whose body was hanging in the tree quite dead." *

These animals, fierce and cruel as they seem, do not certainly seek occasions for attacking even their deadliest enemy, man. Although in herds of great numbers together, and when they could beat their pursuers to the dust, like reeds, they invariably seek to save themselves by retreating to the nearest thickets. The females exhibit the warm attachment to their offspring which is characteristic of the whole Bubaline race, and which a beneficent Providence has imprinted in the bosoms of the rudest creatures. It is for the safety of the young and females that the bulls seem to act as the guardians of the herd. At the season, too, of sexual desire, numbers of the bulls being expelled by their fellows from the community, wander about for a season with excited passions, and then manifest that ferocity which has been witnessed.

The chase of these animals in the forests of tangled brushwood which they frequent, is attended with much danger. Their strong hides resist the rifle ball like a target, and common balls of lead are flattened when they strike their bones. For this reason the balls employed are of great weight, and alloyed with tin, and even then they are sometimes shattered as if they had struck a wall of steel. The Hottentots are extremely dexterous in this dangerous chase, crawling on their bellies until they reach their victims, and using, instead of their ancient weapons, the rifles and long muskets with which their rude masters have supplied them. But the Caffres are in a peculiar degree attached to this dangerous exercise: they pursue the chase in companies; when an individual discovers the herd, he winds a small pipe made of the thigh-bone of a Sheep, and his companions hastening to his aid, they environ the game, and pierce them with spears. The Bushmen, for the same purpose, use javelins and arrows dipped in poison.

The flesh of these animals is said to be juicy and well flavoured. But it is chiefly for their hides that they are valued by the African hunters and the farmers of the Cape. These are so thick and tough, that they may be formed into targets, musket proof; they are used, too, for whips, and for the straps of harness, and are said to form the only halters that can be depended upon for securing horses and oxen, when picketted in travelling, and alarmed by the stealthy approach of the wolf, or the rustle of the lion.†

The use of fire-arms is rapidly thinning the number of these powerful creatures within the European territory of the Cape: they slowly retire to the woods of the interior, where they can be safe from the dangerous weapons of their destroyers. Nor is man their only enemy: the Wolf, the Hyæna, and other fierce creatures, are the inhabitants of the same woods; and the Lion, it is said, steals upon and attacks them. The natives speak of having been witnesses of these murderous conflicts; and say, that

---

* Penny Magazine, 1832.

† Sparrman's Voyage.

HISTORY.

wounds inflicted by Lions are often observed in the muzzles and bodies of such Buffaloes as are killed in the chase; and that the carcasses of Lions are sometimes found gored by the terrible horns of the Buffalo. A question that arises is, can these wild and dangerous animals be subjected to servitude and domestication? SPARRMAN informs us, that he saw a Buffalo calf, taken soon after birth, grazing amongst the other calves of the farm, and as docile as any of the herd. He accordingly expresses his belief that the Buffalo calves, if taken young and properly trained, might be broken to the yoke. But the animals should not only be taken young, but should be born and made to breed in the state of servitude, in order that it might be fully known what ultimate changes domestication would produce in their habits, and to what degree they could be rendered the assistants of man, instead of being, as now, the victims of his persecution.

The next to be mentioned of the Bovine family is a native of India. The Gayal or Jungle Ox, the *Bos frontalis* of LAMBERT, inhabits the mountain forests east of the Burrampootra, but doubtless extends far into the dense regions of forest beyond that noble river. The precise place which this species occupies amongst the Bovidæ, has not been satisfactorily determined. He seems allied to the Bisontine and Taurine groups, and is probably to be regarded as the connecting link between them.

The Jungle Ox has the head broad and flat above, and contracting suddenly to the muzzle. The horns are distant, thick at the base, and slightly compressed, the flat sides being towards the front and rear; the ears are long, the eyes are like those of the common Ox, the muzzle is destitute of hairs. A sharp ridge runs from the back part of the neck and top of the shoulder, along about a third part of the back, and then suddenly terminates. The sacrum has a considerable declination to the tail, making the rump round like that of a hog. The tail descends to about the hock, is covered with short hairs, and terminates in a tuft. The prevailing colour is brown of various shades, and the legs, belly, and tip of the tail are white. This animal has a somewhat clumsy aspect, but is yet possessed of great activity and strength. He is of the size of an ordinary Ox of this country. He does not grunt in the manner of the Yak of Tartary, but lows like the Ox of Europe, although with a shriller and softer tone.

In their wild state the Gayals seem to be entirely the inhabitants of a country of dense forest, never of their own accord approaching to the plains; and this habit they do not lose in the state of slavery. They delight to roam in the thickest woods; they neglect the grasses, and rather love to browse on shrubs and the tender shoots of trees: they repair to the jungle in search of their natural food, and ruminate under the shade of trees. They have not the habit of the Yak and the Buffalo of wallowing in water, but rather in their habits approach to the domestic race. The female goes with young eleven months; she yields very rich milk, but neither abundant nor lasting. She receives the male of the common race, and the progeny it is said is fruitful.

The Gayals are hunted by certain tribes for their flesh, but they are also reclaimed to some extent in the East. They are perfectly docile in their domestic state, and are so fleet and active that they may be used for the saddle. Certain sects in India, it is said, sacrifice this animal to their gods; but the Hindoos will not shed the blood of the Gayal; their sacred books informing them that the Gayal is like the Ox, and so they hold it in the like veneration.

The Taurine group of Bovidæ comprehends the Domestic Ox, under its several modifications of varieties or species. Whether the various numbers of this group are to be regarded as species, or merely as modifications of a common stock, that is, as varieties or races, depends upon the meanings which are to be assigned to those terms. The Taurine group throughout the world possesses characters of resemblance which may allow the naturalists to regard them as a single species, just as we may so regard the various races of mankind: but at the same time there are differences between the members quite as great as in other cases employed to discriminate species, as, for example, to distinguish the Ass from the Zebra.

This group is distinguished by possessing thirteen pairs of ribs, and a broad muzzle, destitute of hairs; by having eight incisor teeth in the lower jaw, and in the upper a cartilaginous pad in place of incisor teeth; by being destitute of canine teeth; and by having twelve molar or grinding teeth in each jaw, in all thirty-two teeth. There are horns in the male and the female, which proceed from a ridge separating the occiput from the forehead: they are usually turned up at the points, but sometimes they are straight, sometimes they are bent downwards, and sometimes they are rudimental in one or both sexes. The female has a large udder, and four teats; she goes with young about forty weeks, and has one and rarely two at a birth.

The Taurine family may be regarded as presenting two distinct types, which may be termed the Caucasian, and the Indian, to which we might add another derived from Africa, were we sufficiently acquainted with the races which people that continent.

The Caucasian group comprehends the greater part of the Domestic Oxen of Western Asia, all those of Europe, and those of a part of Africa. In its connexion with the earlier history of man and the progress of civilization, it is the most important of any. Its different members have such common characters of resemblance in form, aspect, and habits, as to enable us to regard them as identical.

A natural curiosity prompts us to look for the origin of this creature in the wild animals of similar characters which still exist, or which are found in the fossil state. We have seen that the parent stocks of the Buffalo, the Yak, and the Gayal, are all found

in the wild state in the countries where these animals are domesticated: and we cannot but believe also that the wild of the domestic Ox either yet exists, or did exist in a former age.

Now, the concurrent testimony of many writers shows that an animal identical with the domestic races existed in the ancient forests of Europe. This animal was termed Urochs by the older Germans, a word which is derived from *Ur*, a root common to many languages, and signifying original or old, and *ochs*, an ox. The Greek and Roman writers employed the term Urus, either borrowed from the Teutonic, or derived from the same root, Ur, which entered into the composition of their own Ταυρος and Taurus. From the same source are derived the Shur and Tur of the Hebrew and other languages of the East; and hence, too, the Thur of the Poles, the Tyr, Tyer, Stier, Steer, in the dialects of northern Europe. We find, too, terms derived from the designation of the bull applied to the names of countries, mountains, and forests; as the Turan of Persia, the Turan of the Caucaus, the Turin of Italy, the Tours of France, the Thuringian forest, and many more.

The Uri are described by JULIUS CÆSAR as existing in the Hercynian forest, as being little short of elephants in size, and as being of the kind, colour, and figure of the bull.* PLINY refers to them as inhabitants of Scythia and Germany, along with the Bison, adverting at the same time to the vulgar error of confounding the Urus with the Bubalus, which, says he, was an animal like a Stag brought from Africa. SOLINUS repeats the opinion of PLINY. "In the tract of the Hercynian forest, and in all the northern regions, are likewise Uri, which the ignorant vulgar term Bubali." But the great confusion which subsequently took place was in confounding the Urus with the Bison, although the distinction had been drawn by PLINY, SENECA, POMPONIUS, and other writers. More modern authors still more distinctly point out the difference between those animals. Thus LAURENTIUS, in his commentaries on the affairs of his own time, writes: "In Lithuania there are Bisons, Uri, and likewise Elks: those are in error who call the Bisons, Uri; for the Bisons differ from the Uri, which have the form of an Ox, in having manes, and long hairs about the neck, in having a beard hanging from the chin, and in smelling of musk." In an ancient poem on a hunting match near Worms, we have a distinct account of the number of Bisons, Uri, and Elks, which were respectively slain; and various chroniclers refer to the hunting of the ancient Uri in the forests of Europe. HEBERSTEIN, De Rebus Muscov., and MARTIN CROMER, De Situ Poloniæ, writers of the sixteenth century, describe the distinction between the Bison or Zubr of the Poles, and the Thur of the same nation, and state that the Thur was only then to be found at Varsovia in Poland, where it was kept for curiosity. ANTHONY SCHNIEBERGEN describes the Thur as differing from the domestic race only in size and colour. Yet, in the middle ages, ALBERTUS MAGNUS, and other writers, fell into the error of confounding those animals; and several German writers applied the term Urochs or Auerochs, the undoubted designation of their own *Urus*, to the Bison; and modern naturalists, in opposition to the testimony of the older writers, are yet found to maintain the same error.

In the first part of this work, it has been shown that the Urus inhabited, until a late period, the forests of the British Islands. ANTHONY FITZSTEPHEN, it has been seen, who wrote in the latter period of the reign of Henry II., describes the Uri as abounding in the great forests round London: and Scottish writers and eye-witnesses describe them as existing in the great Sylva Caledonia until the sixteenth century. It has likewise been shown that the remnants of this race are yet preserved in various parks of English noblemen, exhibiting the characters and habits of the wild race. It has likewise been shown that these animals differ in no essential characters from the domestic races of the mountains of the country; that, by a mere change of colour, they become undistinguishable from them, and, by the effects of domestication, lose all the peculiar habits indicative of their wild condition.

Fossil skulls have been found in various parts of Europe resembling those of the Urus and the domestic race, and differing from them only in size. These bones indicate an animal greatly surpassing in magnitude any of the modern races of oxen. They are usually about one-third or more larger in linear size, indicating an animal nearly two and a half times the bulk of the oxen of the present time. Their remains are found in the same alluvial deposites as those of the Elephant, and other large species which formerly inhabited Europe, proving that they lived at the same era: they are found likewise in the same situations as the great extinct Irish Elk, and thus seem to have survived various species with which they were associated, and even perhaps to have survived till within the historic era.

A question which has been agitated by naturalists is, Whether these huge animals are the origin of the domestic races, and may not even have been the Uri described by CÆSAR? The question is one which bears less than is assumed upon the origin of the existing races. We can, by all the evidence which the question admits of, trace the existing races to the Uri, which, long posterior to the historical era, inhabited the forests of Germany, Gaul, Britain, and other countries. It is a question involving an entirely different series of considerations, whether these Uri were themselves descended from an anterior race, surpassing them in magnitude, and inhabiting the globe at the same time with other extinct species. While there is nothing that can directly

---

* In Sylva Hercyniæ nascuntur qui appellantur Uri. Hi sunt magnitudine paulo infra Elephantos, specie et colore et figura Tauri.—*De Bello Gallico.*

support this hypothesis, there is nothing certainly founded on analogy that can enable us to invalidate it. There is nothing more incredible in the supposition that animals should diminish in size, with changes in the condition of the earth, than that they should be extinguished altogether, and supplanted by new species. The fossil Urus inhabited Europe when a very different condition existed with regard to temperature, the supplies of vegetable food, and the consequent development of animal forms. Why should not the Urus, under these conditions, have been a far larger animal than he subsequently became? We know by experience the effects of food in increasing or diminishing the size of this very race of animals. The great Ox of the Lincolnshire fens exceeds in size the little Ox of Barbary or the Highland Hills, as much as the fossil Urus exceeded the larger Oxen of Germany and England: and we cannot consider it as incredible, that an animal which inhabited Europe when Elephants found food and a climate suited to their natures, should have greatly surpassed in magnitude the same species under the present conditions of the same countries.

When CÆSAR states that the Uri of the Hercynian forest were little short of Elephants in size, he did not use a very exaggerated figure. Some of the larger domestic races of England, Germany, and the Ukraine, are little lower than Elephants, and were these large creatures to be seen in the wild state, it would scarcely be an error to employ the expressions which CÆSAR used to convey ideas of their magnitude. It is in no degree necessary, then, to assume that the Uri described by CÆSAR were identical with the fossil species, or different in any degree from those which a few centuries later inhabited the same forests.

That the wild of the *Bos taurus* inhabited in like manner the woods of Western Asia, may, from analogy, be inferred. The Scriptures speak of wild oxen, as distinguished from those that are tame; and the Arabian poets abound with allusions to the hunting of the wild bull, but do not afford data for determining whether this was the Urus, the Bison, or some other species.

This creature has been domesticated from the earliest records of human society, and may be deemed to have been an instrument under Providence for leading men from the savage state. Although endowed with vast physical powers, his instinct leads him to yield up his faculties to the services of man, by assisting him in bearing burdens, and tilling the earth; and in every age his patient docility has been applied to these ends. The wealth of the first people was their flocks and herds: "And ABRAM was very rich in cattle, in silver, and in gold; and he went on his journeys from the south over to Bethel, unto the place where his tent had been at the beginning, between Bethel and Hai, unto the place of the altar which he had made at the first; and there ABRAM called on the name of the LORD; and LOT also, which went with ABRAM, had flocks, and herds, and tents." And in the case of all the early nations of which we read, the Ox was amongst the valued possessions of the people. He was a medium of traffic, and his image came at length to be stamped upon the metals used as money. His flesh was usually permitted to be eaten, though, in certain cases, the use of it was limited, or altogether forbidden, as when he was employed in labour, or when his numbers were few, in the earlier stages of societies. The Hindoos were forbidden to shed his blood at all; the Egyptians were only permitted to do so at sacrifices; and other nations were compelled to equal abstinence. The Jews were suffered to partake of his flesh freely, on the condition simply that the firstling of the herd should be dedicated to the LORD, and that no part of the blood should be tasted; but the Jews were naturally abstemious in the use of animal food, and such of the calves as were not killed, were mostly brought up for the purposes of labour or the yielding of milk.

History, sacred and profane, evince to us in what estimation this gift of Providence has been held in every age. The Bull became one of the signs of the Zodiac in the earliest period of nations. He formed an object of adoration to people of the East, as he yet does to their descendants after the lapse of an unknown period. The Egyptians made him the subject of a preposterous worship, as did the Lybians and other ancient nations, and he entered largely into the mythological systems of Greece and Rome. Independently, too, of religious feelings, a certain respect was manifested towards the Ox on account of the services he rendered. The precept of the Jewish law, "Thou shalt not muzzle the ox when he treadeth out the corn," was an observance founded on tenderness towards the animal, as well as an expression of thankfulness at this the crowning labour of the harvest. The rustic writers of the Romans, in their lessons on the treatment of the labouring Ox, show how much of real humanity entered into their feelings regarding this ancient and docile assistant of the husbandman. They direct that the length of the furrow shall not exceed 120 paces, or else that the oxen shall have a time for breathing allowed them before they are urged to renewed efforts. The ploughman is required to shift the yoke, that their backs may not be galled,—to moisten their mouths with water, and to strengthen them with wine when they are suffering from fatigue. Even the safeguard of the laws was thrown around these humble servants of the farm. To destroy them wantonly was a capital crime. A Roman citizen, we are informed by PLINY, was condemned to exile, because he had killed his labouring ox to gratify the appetite of a capricious boy; and other examples are on record, to testify how greatly the useful services of the Ox were valued. The Celtic nations of Europe seem to have possessed somewhat of the same sentiments, mixed with religious feelings. Even to our own day, certain superstitious remembrances are attached to the red cow, whose milk is believed to be a charm for certain ailments.

HISTORY.

The Ox contributes to human support by other means than his strength employed in labour, or his body rendered to us when dead. The female yields her milk in quantity not only sufficient to rear her own offspring, but to afford a salutary food to her protectors. She gives it with a facility and in an abundance unknown in the case of any other animal. While most of the mammalia will refuse to yield their milk unless their young be suffered to partake of it, the Cow gives it beyond the period of maternal solicitude as freely as when her young is before her eyes. She is every where docile, patient, and gentle. She remains quiescent with the herd, or shares with humbleness her portion of the cot which is their common shelter. She obeys the commands of her keeper, and recognises the milkmaid's voice.

While the female is thus gentle and humble, the bull retains much of the natural fierceness of his race. He scarcely fears an enemy, and is easily excited to rage. He can be reduced to subjection by the effects of discipline, and made to assist in all the labours of the field; but yet his passions are often suddenly excited, and his great strength may be dangerously exerted. But, by depriving him of his virile powers, all the native ferocity of his race disappears, and he becomes as submissive as the heifer. It is then that he gives us the benefit of his vast strength, exempt from the danger of his natural temperament, bending his neck to patient toil, and grazing with content in his allotted pastures.

We are apt to associate with the character of this useful creature ideas of apathy, and want of intelligence. But the brain of the Ox is larger than that of the Horse, and though he is far inferior to that noble creature in spirit and grace, it is questionable if he falls short of him in sagacity. The bull has been known to charge himself with the guardianship of the herd, to keep them from wandering into forbidden pastures, and to protect from intruders their allotted boundaries. When beasts of prey approach he is at the post of danger, marshalling the herd into a phalanx, and placing the young in the centre and rear.

When the season of sexual desire arrives, fierce combats ensue between the rival bulls. Their eyes sparkle with rage, and they rush upon one another with desperate force. But their fury is given not for the purpose of mutual destruction, but for an end connected with the preservation of the health and vigour of the race. It is necessary that the strongest males should propagate the race to preserve it from feebleness and degeneracy. They contend with the powerful strength and arms with which Nature has supplied them, for the mastery of the herd. But they do not seek to shed each other's bood. The vanquished yield to the law of superior strength, and the most powerful assumes his fitting place.

In the vast plains of South America, where the emancipated herds have regained a certain degree of natural liberty, travellers have observed that, when a bullock has been slain for food, the herd surround the murderers of their comrade, and express by loud cries and groans their sympathy and sorrow, while tears have seemed to roll from their eyes. They cannot know why the blood of their fellow should be shed, and his body mangled; but they show that Nature has not rendered them insensible to the sufferings of their comrades.

When the Ox is merely a beast to be fattened and destroyed,—when he neither shares the toils of his master, nor participates in his regards,—when his instincts have been blunted, without instruction having been supplied,—he does indeed seem to become the stupid and insensible brute which we hold him to be. What need has he of intelligence in order that he may be tied to the stall, or driven to his pasture, and back again to the slaughter-house? Nature is sparing of her mental gifts, giving to each creature that which fits it for its condition. What, to the victim of our gluttony and avarice, destined to unnatural repletion at the stall that he may be fattened in the shortest time, and doomed to die a cruel death, would avail the gifts of consciousness of danger, docility, and the knowledge of what is good for him? His brief life would be the more embittered, and the bounties of Nature would be a cruel present. But let us look at those wild Oxen which have never been reduced to slavery, as the Uri of our parks, or the European Oxen, which, in the fertile wilderness of the New World, have regained their liberty, and we shall find a creature altogether different from the stupid and insensible slave whom we have degraded. We shall find him wary of danger, resolute in his defence against the beasts of prey, agile and swift, and calling into action all his instincts for his own defence, and braving death that he may protect the feeble of his herd. Nay let us regard him, even in his enslaved condition, but when human reason has aided him with a ray of light, and we shall see him become almost as docile as a dog, guarding the property of his master, nay, so far departing from his natural habits, as to mingle for his master's sake in scenes of strife and bloodshed.

In the vast regions of Southern Africa, peopled by tribes of warriors and herdsmen, cattle abound and multiply, and form the wealth of the little communities. The simple and patient Hottentots, while yet they had a country which they could call their own, were rich in this kind of possession; and even yet, after generations of servitude, retain the habits and feelings of their nomadic state. The tending of cattle is still the favourite employment of their lives: they know the individuals of the herd, and address them by their names. They had their backleys, or trained oxen, of which each kraal had at least six: they were selected from those which seemed the most capable of receiving instruction, and when one died or became unserviceable from age, another was chosen

HISTORY.

with due solemnity by the elders of the tribe to supply its room. They were taught to become the guardians of the flocks and herds of the little community; they kept watch against the attacks of beasts of prey. The Hyæna, we are told, however hungry, would not venture to attack a flock guarded by two or three of these courageous creatures, which, when in sufficient numbers, would even make head against the Lion in defence of their charge. They kept watch against the robbers of other tribes. They knew all the inhabitants of the kraal, men, women, and children, and manifested towards them the same respect which a dog displays to those who live in the house of his master. Whilst, therefore, there was no inhabitant of the kraal who might not with safety have approached the flocks, yet, should a stranger have attempted to do so, and especially a European, without being accompanied by a Hottentot, he would have been in great danger: the backleys would have come upon him at speed, and, unless he had fire-arms to defend himself, or had the means of escape to a tree, or was within reach of the shepherds, he would surely have been killed.* Not only were these backleys employed to be the guides and protectors of the common flock, but others were trained for the purposes of war. Even still, these war-oxen are used by the Caffres and independent tribes of the interior. They are taught to share the fierce passions of their masters; to rush upon the opposing ranks, trample the men under their feet, and gore them with their horns.†

Nothing seems more unlike the dull and apathetic temperament of the Ox than a love of distinction; yet that a feeling akin to this may exist, appears from a curious fact frequently mentioned. In the mountains of Switzerland, where a beautiful race of cows is reared, it is the practice to attach bells to the most trusty of the cows, that the sound may keep the herd together, and direct the herdsman to the place where they are pasturing. These cows are the pride of the cowkeeper: he has various sets of these bells, and on certain occasions the favourite cow has the finest and largest bell assigned to her, and the gayest trappings: the others have inferior bells, and less ornamented collars, in a gradation downwards to those to which no distinction is awarded. To deprive the cows of their wonted ornaments is to inflict upon them a punishment which they grievously feel, manifesting their sense of humiliation by piteous lowings. On gala days a kind of procession takes place; the herdsman is in the van, and next in order comes the favourite cow, leading the herd, ornamented with her tinkling bells, and gay apparel. Should another, from any cause, be made to take her place, she manifests her vexation by continued lowing, abstains from food, and attacks with fury the rival that has gained her honours. A certain cow, M. Latrobe informs us, who had long borne the badge of distinction, had just given birth to a calf, and was reckoned too feeble to bear her usual post in the honours of the day, and even the ordinary bell was thought to be too heavy for her. The gay procession moved on, but the poor cow that had been stripped of her accustomed honours did not share in the general joy: after a few steps she faultered in her pace: the attendants tried to coax her on, but in vain: she stopped, and at length lay down as if to die. An old herdsman soon divined the cause: he brought from the house a bell and collar, such as she had been used to bear: she no sooner felt the well-known appendage at her neck than she rose from the ground, bounded gaily as if in possession of her usual health, and, taking her place in the van, was from that moment as well as ever. It is known that a practice of the mountain peasants of Switzerland is to collect the herds by sounding a long wooden pipe, whose deep and simple tones, mellowed by distance, delight the ear. No sooner does the well-known sound reach the herd, than they all obey the signal, and hasten to the place of rendezvous. Should one from any cause, as from falls or weakness, be unable to keep pace with her fellows, she utters loud and painful lowings, as if calling for assistance, and testifying that it is want of power and not of will that makes her linger behind her comrades. The simple tones of the herdsman's pipe form the well-known air of the Ranz des Vaches, which is known to thrill like a charm to the heart of the mountain Swiss when distant from his beloved land.

Such is the creature which reason and conscience teach us to treat with humanity and justice. It is painful to say that it is too often made the victim of wanton cruelty. Who has not heard of those barbarous sports which yet are practised in the southern countries of Europe, where the bull, brought into the arena, is roused to phrensy, and put to a cruel death? The bull-fights of Spain and Italy are yet the delight of all conditions of people in those countries, and afford the evidence of the power of habit to blunt the most natural feelings, and reconcile us to the most revolting spectacles.

Throughout the kingdoms of Spain and Portugal are extensive forests, in which large herds of cattle find support, almost in a state of natural wildness. It is from these herds that the fiercest and strongest bulls are obtained, by a kind of hunting more dangerous than the subsequent combat in which the victims are to engage. The country people, from great distances, assemble, mounted on horseback as best they can, and armed with long staves, terminated by iron spikes. Lines being formed, they surround the herd, and endeavour to separate the bulls. This they do by galloping to a bull and goading him with their spikes; the animal, enraged, turns upon his assailant, and pursues him; but another horseman attacking him in a similar manner, the animal turns

* Kolben, vol. i.

† Le Vaillant, vol. ii.

upon his new enemy, who is in like manner relieved, and so on, until at length the bull, tired out and bewildered, is separated from his fellows. A sufficient number having been treated in this manner, they are hemmed in by the armed horsemen, and goaded forward to the town or place where the future combat is to take place.*

The fights of the Circus itself have been described by all travellers who have visited these beautiful countries. The bull, admitted into the arena, is received with the shouts of the assembled spectators. Bewildered and amazed, he rushes forward, but is at once confronted by the Picadore on foot, armed with short darts. The animal rushes wildly on his opponent, who, with matchless dexterity and grace, avoids the onset, and plants his short darts in the neck and body of the victim. Bellowing with rage and pain, the wounded animal gallops round the slaughter-house and is confronted by other Picadores with the like success, until the spectators, satiated, permit him to be relieved from persecution, or direct him to be slain. But, in other cases, armed horsemen enter the lists, and attack the bull with lances. In this manner, the youthful cavaliers display to the best advantage their courage and address. But this sport is more dangerous and bloody than the other, for often one or more horses are mortally wounded, while shouts and screams of joy attest the delight of the spectators. In modern Rome, the same sports are practised, though with somewhat less of inhumanity than in Spain. The bulls are of the fine race of the Campagna di Roma, which are of larger size and strength than those of Spain. They are cruelly baited, but never put to death, though the less manly practice is sometimes adopted of setting upon them with large dogs, chiefly of the Corsican breed, which pin the bulls by the ears and lips. The dogs, however, are often the victims, the infuriated bulls catching them with their long horns, tossing them in the air, and goring them to death.

The Ox, in certain cases, regains his liberty, and multiplies in the natural state. Thus, in the forests of Spain and Portugal, emancipated oxen, it has been said, are numerous. They have become more wild, swift, and wary, but have not deviated from the external characters of the subdued race. When taken, and reduced to captivity, they soon reassume the general habits of the domesticated breeds. In Italy, great numbers of cattle may be said to be nearly wild: they are the inhabitants of those flat and pestilential tracts which stretch between the Apennines and the sea, from Naples northward, including the well known Campagna di Roma. To this dreary tract is applied the general term Maremma, which, during a period of the year, is the abode of pestilence and death, and is thinly strewed with inhabitants, the victims of terrible diseases. The cattle are under the charge of armed herdsmen, who, when the animals are to be taken to the towns, pursue them on horseback, fasten them to one another by the horns, and goad them onward with their long spears.

But it is in the fertile plains of South America, that the phenomenon presents itself on the grandest scale of the escape of oxen from captivity, and of their multiplication in the state of nature. The origin of those amazing herds which cover the plains of Paraguay, Buenos Ayres, and other noble provinces, is traced, by Spanish writers, to the arrival, by the way of Brazil, of seven cows and a bull from Andalusia, at the city of Assumption, on the Paraguay, in the year 1556. The owner of these animals having driven them overland to the Great Rio Grande or Parāna, constructed a rude raft, and entrusted them to the care of one GAETE, who descended the Parāna, and then, ascending the Paraguay, landed his precious charge at the city of Assumption. As his recompense for many months of toil and danger, GAETE received one cow, which has given rise to the saying common in these provinces, that a thing is as dear as GAETE'S cow. Whether all the vast herds of South America are derived from this humble source, may be questioned. But however this be, it is certain that the cattle of Europe soon multiplied amazingly, found their way to the woods and rich Pampas, where they increased in the state of liberty, and now extend in countless multitudes from the southern boundary of Buenos Ayres, to far within the tropics to the north, stretching, in many cases, from the Atlantic to the Cordilleras. They are found in the Brazilian as well as in the Spanish provinces, in the wild as well as in a domesticated state, and have extended beyond the Andes into the beautiful countries on the Pacific, where they are reared in the state of domestication. But it is in the more temperate parts of Paraguay, and the countries of the Rio de la Plata, extending westward, that their numbers have become the greatest, and that those marvellous herds of them are to be beheld, which have escaped entirely from the dominion of man, and fly from his presence like beasts of chase. They migrate in search of fresh pastures with the changes of the season, the strongest of the bulls assuming the guidance of the herd. They have deviated little from the Andalusian type, except that they have assumed a greater uniformity of colour, and that the bulls exhibit less of ferocity and boldness, as is common with other animals naturalized in America. Their colour is a blackish-brown; their size is nearly the same as in the original race, exceeding it in the more temperate countries, and falling short of it in the warmer. The power of the female to yield milk constantly diminishes with the heat of the climate, until, at the tropics, it does not amount to one-third part of the ordinary quantity. They are reclaimed with such facility, that the wildest herds may be domesticated in a month. They are hunted for their hides by people

* Library of Entertaining Knowledge. Menageries.

HISTORY.

of the country, or Gauchos, who pursue them on horseback at speed, forming two lines, meeting at an angle in the rear. The person who is behind at the angle or meeting of the lines, is armed with a sharp instrument of a crescent-shape, fixed to a long handle. With this he hamstrings the oxen as he comes up to them, the party all the time continuing the pursuit. When a sufficient number has been maimed and left on the ground, the party returns, the principal hunter piercing the prostrate oxen with a spear, and others instantly dismounting and stripping off the hide; the carcasses are left behind as of no value, to be devoured by vultures and other beasts of prey.

Those cattle which are in a semidomesticated state, and are the property of individuals, are kept in large herds. They are under the charge of a superintendent with several assistants, whose province it is to prevent them from straying, to protect them from the Ounces, Wolves, Wild Dogs, and other beasts of prey, and to catch those which are to be slaughtered. They are caught by means of the well-known lasso, which incessant practice teaches those wild people to throw with matchless dexterity. It consists of a plaited thong of hides, forty or fifty feet in length, with a noose and iron-ring at one end. Swinging the noose end round and round with the right arm, the other end being coiled over the left arm, and fixed to the saddle girth, they throw their singular missile, themselves all the while at speed, and entangle the victim by the horns, the neck, or by one or both legs, as may be wished, and in an instant hurl him to the ground. One superintendent with four assistants is reckoned sufficient for the tendence of from 4000 to 5000 head of cattle, often extending over a space of eighteen square miles of country; and this establishment, according to AZARA, requires about 70 horses, the Gauchos almost living on horseback. Individual proprietors have often enormous herds, some, according to SPIX, as many as 40,000 head. In Paraguay, the practice is to drive the cattle once a-week, or oftener, to an elevated circuit, termed the Rodeo; in other cases this is only done once a-year, when the bulls are emasculated, generally at the age of two years, and the cattle branded with the owner's mark. These animals do not differ in appearance from those that are entirely wild.

But, besides these wilder herds, it is common for the owners to keep a number of tame cattle, which are used for draught, or for yielding milk, which is partly made into cheese. But so little do the people of the country understand the making of butter, that the Emperor of the Brazils, in possession of the finest herds in the world, obtains the butter for his own use from Ireland, after a voyage of several months. The flesh of these tame cattle is preferred to that of the wild. They are kept in enclosures during the night, and permitted to pasture during the day in the meadows and adjoining plains.

From these herds of cattle are derived those enormous supplies of skins which form the chief export of the countries of the Rio de la Plata and the interior. AZARA informs us, that, in 1796, the export of hides from Buenos Ayres and Monte Video alone was from 800,000 to a million annually; but to form an idea of the magnitude of the continued carnage of those noble herds, we must consider the vast and prodigal consumption of the interior, where no value is set upon the lives of animals so bounteously supplied. They afford the only animal food of the settled inhabitants, who use it with a waste that exceeds belief, selecting the favourite parts, and leaving the rest in the wilderness. The animals, too, are killed in multitudes by the Indians, who plunder them from the farms, or pursue them in mere wantonness. Further, the mortality amongst them is excessive, from the attacks of wild beasts, the torments of venomous insects which pursue them in clouds, and the effects of the barbarous treatment of their wild keepers. The time, indeed, it may be beleived, will come when those rich and beautiful lands, so blessed by the bounties of Nature, so cursed by the ignorance of man, in place of yielding ship-loads of hides, will support an industrious population capable of appreciating and using the natural gifts of their country.

The Caucasian Ox has thus found a new habitat more suitable for the increase of his numbers, than in the most fertile plains of Asia and Europe. He has also been carried to North America and its islands, wherever the settlements of Europeans are found, and equally adapts himself to these situations as to those which are nearer to his native climes. In the United States he is cultivated with considerable care, and has the same useful characters communicated to him by artificial treatment, and the selecting of the parent stock, as in the countries of Europe where attention has been paid to the development of his properties.

But in the warmer regions of Eastern Asia the Ox appears with such distinct form and characters, as to leave the naturalist in doubt whether he ought to be regarded as a distinct species, rather than as a variety or race. He is generally termed the Zebu, from an Indian name; and though he differs greatly in size in different localities, he presents every where the same general characters which ancient figures shew him to have possessed from the earliest times.

The Indian Ox has a flatter and more oblique forehead than the Caucasian; his horns are more straight, short, and directed backward; his ears are very long, and pendent. He is furnished with a large fleshy hump upon his shoulders, his haunch is very round, like that of the Gayal, and his limbs are slender and graceful. His skin is soft, and he is furnished with a large dewlap hanging down in folds.

He is found throughout the whole of Hindostan, and stretches all eastward through China, to Japan and other islands of the

HISTORY.

East. He gradually diminishes in numbers beyond the Indus, and in Persia gives entire place to the Caucasian race. He is found, however, in Arabia, having been probably carried thither from India. An animal similar with respect to the possession of a dorsal hump, but probably of African descent, is numerous in Abyssinia and Upper Egypt, extending along the eastern coasts of Africa to the Island of Madagascar and the country of the Caffres, and westwards from Abyssinia to the Niger.

He was found in Syria before the Christian era, ARISTOTLE distinctly mentioning the humped oxen of Syria. It has been observed as remarkable, that the Grecian sculptors gave a dewlap to their oxen somewhat like that of Eastern countries. No conclusion can be founded on this coincidence, with respect to the existence of this race in Greece. The description and sculptures of the Greeks exhibit the Caucasian, and not the Indian forms. Dewlaps are largely developed in all races of Oxen which approach the natural state; and in copying the wilder bulls of their own country, the sculptors of Greece had sufficient examples of the graceful dewlap to guide them in their ideal representations. In the figures of the Zodiac by the Egyptians and Greeks, the form of the bull is always of the Caucasian, and never of the Indian animal. On the other hand, on the most ancient monuments of the East, as those of Elephanta, all the memorials of whose origin are hidden in the obscurity of the past, the representations of the Ox always exhibit the Zebu form. From the remotest antiquity, therefore, the form of the Indian Zebu has remained unchanged. Nay, some have believed that the Zebu is the original type of the Ox, that the warmer regions of the East are the native country of the race, and that it is only as he is removed from these that he assumes the Caucasian form.

The Zebu differs greatly in size in different parts of Hindostan, and other countries of the East. Like many species, he dwindles towards the countries of the Pacific, so that in Corea and the Islands of Japan he is little larger than a Hog, showing that these countries are at the limits of the natural habitat of the species. Even within the bounds of Hindostan he shows a great diversity of size and aspect, but we are not entitled to regard these variations as any other than those which distinguish breeds. In almost every considerable country we find variations as great in the form, size, and aspect of the different races of the domestic animals. There is not a greater difference between the dwarfish and hornless Zebu of certain districts of India, and the larger races of the same country, than there is between the little Ox of the mountains of Kerry, and the huge steers of the Lincolnshire fens. It is an error to argue, that, because in the same districts of India are to be seen both the dwarfish and the larger Zebu, the animals must be distinct. Breeds retain for an unknown period the characters once imprinted upon them: they may be mingled together in the same locality for ages, each retaining its distinctive characters. Thus in England we see breeds the most distinguished from one another inhabiting the same tract of country from generation to generation. Naturalists would do well to avoid the confusion of seeking for slight characters to distinguish animals in all essential characters alike. We must change our definition of a natural species, if we characterize as specifically distinct animals so manifestly similar as the different varieties of the Indian Zebu.

The finest breeds of the Eastern Zebu seem to be produced in the northern provinces of Hindostan. There they are tall and graceful animals, surpassing in the power of active motion any of the races of Oxen with which we are conversant in Europe. They are used for the saddle, for chariots, for the bearing of burdens, for common draught, and all the labours of the field. They accompany the predatory armies of Indian nations in thousands, carrying all the materials of war. They are used in state processions by the Princes of India. They are guided by a cord passed through the septum of the nose, to which are attached the bridle-reins, which, when not used, rest upon the hump of the shoulder. Their motion is easy, and they trot and gallop almost as freely as a horse. They have great powers of endurance, frequently travelling sixty or eighty miles a-day. When employed in chariots or the plough, they draw by a yoke which rests upon the shoulder. They are exceedingly tractable, and become attached to their keepers. The milk-white colour is esteemed by the Hindoos, as by the ancient Egyptians, as having a character of sanctity. Very often rich Hindoos dedicate a particular bull of the sacred colour to Siva, when he is branded by the emblem of the god, and thenceforward becomes exempt from the contumely of servitude. He wanders where he will, and no one strikes, molests, or turns him from his path: he feeds in the gardens, the rice fields, or wherever he chooses to enter: he finds his way into the market-places of towns, and helps himself to the green herbs and choicest fruits without any one driving him away. Impunity renders him familiar: he will take food from the hand like a dog, and every where dainties are presented to him by simple devotees. These consecrated bulls are described by English residents as absolute pests in the villages of India, thrusting their noses into the stalls of fruiterers and pastry-cooks, robbing the peasants of their little treasure, and helping themselves to whatever they please. The reverence, however, paid to the Bull and the Cow is not extended to the emasculated Ox, who is treated with the utmost harshness, under the solitary exception of obedience to the law common to the Hindoos and Jews, of not muzzling the Ox when he treadeth out the corn.

Examples of the larger as well as smaller races of these animals have been frequently brought to England, and they have been made to cross the common breeds of the country. The mixed offspring are fruitful with one another, and the characteristic hump

disappears with the first cross. In the year 1832, a bull and cow of the finer breed were exhibited at the Christmas Smithfield Show in London, under the name of Nagore cattle. The following account of them, derived from Mr PERKINS, to whom they belonged, is given by Mr YOUATT, in his valuable Treatise on Cattle, contained in the Library of Useful Knowledge.

"They were bred by Lieutenant-Colonel SKINNER, at his farm at Danah, near Pokah, on the borders of the Bichaneer desert, 100 miles to the westward of Delhi. They are not Buffaloes, but of the highest breed of Indian cattle. They are used in India by the higher orders to draw their state carriages, and are much valued for their size, speed, and endurance, and sell at very high prices. These specimens arrived at Calcutta, a distance of 1400 miles, in January 1829, and were then something under six months old. They were sent as a present to Mr WOOD, who was then residing at Calcutta, and by whom they were presented to Mr PERKINS. Colonel SKINNER has a large stock of them, and six or seven beasts are always kept saddled to carry the military dispatches. They remain saddled three or four hours, and if not wanted in that time, fresh ones are brought to relieve their companions. They will travel with a soldier on their back fifteen or sixteen hours a-day, at the rate of six miles an hour. Their action is particularly fine, nothing like that of the English cattle, with the sideway circular action of their hind-legs; the Nagpore cattle bring their hind-legs under them in as straight a line as the Horse. They are very active, and can clear a five-barred gate with the greatest ease. Mr PERKINS has a calf which has leaped over an iron fence higher than any five-barred gate; and the bull frequently jumps over the same fence in order to get at the water, and, when he has drunk his fill, leaps back again. The bull was in high condition when exhibited. He is employed in a light cart in various jobs about the farm. Sometimes he goes fore-horse in the waggon-team to deliver corn; he also drags the bush-harrow, and draws the light roller over the ploughed land. He is very docile and tractable when one man drives him and attends upon him, but he has now and then shown symptoms of dislike to others. He is fed entirely on hay, except that, when he works, a little bran is given to him, and in the turnip season, he is treated occasionally with a few slices of Swedes, of which he is very fond. He was at first very troublesome to shoe, and it was necessary to erect a break in order to confine him. He was unwilling to go into it for some time, but now walks in very contentedly. He is very fond of being noticed; and often, when he is lying down, if any one to whom he is accustomed goes and sits down upon him and strokes him over the face, he will turn round and put his head on their lap, and lie there contentedly as long as they please. The cow is at grass with the milch cows, and comes up with them morning and evening when they are driven to be milked." *

But the Ox extends to another vast division of the globe, when we may expect him to exhibit modifications dependent on the peculiar conditions under which he is placed, and which exert so great an influence on the development of animal forms. But a vast part of the African continent is yet untrodden by the foot of the naturalist, and we are left to draw our knowledge of its animals from the uncertain notices of travellers, often too much occupied with the dangers around them, to be able to afford us the details required. We know, however, that the Ox, under various modifications, abounds throughout those vast countries, is everywhere subjected to servitude, affords milk and flesh to the inhabitants, and assists them in their rude labours; but of the species or races, our knowledge is in a high degree imperfect. So far as we know, the Caucasian Ox prevails along all the countries on the Mediterranean, and a part of the shores of the Atlantic; but how much it occupies of the interior, travellers, the most observant, have failed to inform us. The same form appears in Southern Africa, in the races which are cultivated by the Hottentots, the Caffres, and other tribes stretching to the deserts of the interior. The oxen of these races are of small size, like those of the mountainous parts of Europe, and are possessed of great activity and power of endurance.

But, in Africa, the Ox likewise presents itself under a different form, having the large hump of the Indian Zebu, but being distinguished from the latter animal by large light and spreading horns. This race appears in Abyssinia, whence it extends down the Nile to the tropic of Cancer, and perhaps beyond it, westward through the unexplored regions of the countries of the Negroes to the Niger, and southward again through 40° of latitude to the country of the Caffres. It thus seems to extend over nearly all the burning regions of the continent, and it is difficult to believe that an animal so diffused is not indigenous to the country which produces it. It may indeed be conjectured that it is the Asiatic Zebu, transported from the East to Western Africa. Though we have nothing to invalidate this opinion, it certainly seems to be a very violent hypothesis; and a more natural supposition is, that an animal occupying all the intertropical regions of Africa, is as proper to the country itself as the Zebu of India is to the countries of the East. Unfortunately, the accounts of travellers are not sufficiently precise to enable us to compare the Indian with the African Ox, and it is doubtful if a single specimen of the Humped Ox of Africa has been brought to Europe.

BRUCE, on entering Abyssinia by the mountain of Taranto, describes the bulls and cows as of exquisite beauty, as being completely white, with large dewlaps hanging down to the knees, with heads, horns, and hoofs, completely well turned, with the horns

* Library of Useful Knowledge.

wide, and the hair like silk. In another place, he informs us that, in the fertile and populous province of Woggora, the oxen have large and beautiful horns, exceedingly wide, and that they have bosses on their backs like camels. Other writers agree in the great size of the horns of the humped cattle of Africa. Captain CLAPPERTON describes the race of Bornon, likewise humped, in the very heart of the continent, as being of a white colour and large size, and as having horns, very light, of three feet seven inches in length, measured along the curve. We cannot say indeed, that the mere tendency to a large development of horn constitutes a specific distinction; but as this is a character which remarkably distinguishes the humped cattle of Africa from those of India, it furnishes a reasonable ground for believing that the humped cattle of Africa have characters proper to themselves, and are as much an original race as the Zebus of India.

The accumulation of fatty matter on the shoulder of the Ox, may not unreasonably be regarded as a natural provision for fitting him for countries of intense heat. The cultivated Ox of England accumulates fat largely within the body, but this might not consist with the exercise of the animal functions in a climate of high temperature; and, therefore, the fatty secretion may be placed externally on a particular part of the body. In certain races of sheep in Africa the same tendency is observed, lumps of fatty matter appearing beneath the skin, on the shoulders and head, and in other races, as has been shown, in another place, on the tail, which becomes of enormous magnitude. The hump of the Camel seems to be a similar provision for the accumulation of nutrient matter, and may be supposed to be connected with the extraordinary patience under abstinence from food, which distinguishes this child of the desert. The fatty hump of the Oxen in warmer countries, may thus be regarded as an adaptation of the animal to the condition in which he is placed.

Another provision for fitting the Ox of warmer countries to the circumstances of his situation, is the possession of a light, sinewy, and active form. The heavy Ox of the plains of Holland and England, could not subsist in the arid climate and on the scanty herbage of the African desert. Hence we find the Oxen of Africa of less bulk of body, and more agile in their motions, than those in the temperate countries of abundant herbage. All over Africa, these animals are employed in laborious journeys, and for the bearing of heavy loads. Their appearance and employment in these arid countries are thus described by a recent traveller:

"The bullock is the bearer of all the grain and other articles to and from the markets. A small saddle of plaited rushes is laid upon him, when sacks made of goat-skins, and filled with corn, are lashed on his broad and able back. A leather thong is passed through the cartilage of his nose, and serves as a bridle, while on the top of the load is mounted the owner, his wife, or his slave. Sometimes the daughter or the wife of a rich shouaa will be mounted on her particular bullock, and precede the loaded animals, extravagantly adorned with amber, silver, rings, coral, and all sorts of finery, her hair streaming with fat, a black ring of kohol, at least an inch wide, round her eyes, and, I may say, arrayed for conquest at the crowded market. Carpets or tobes are then spread on her clumsy palfrey; she sits *jambe deca, jambe de la*, and, with considerable grace, guides her animal by the nose. Notwithstanding the peaceableness of his nature, her vanity still enables her to torture him into something like caperings and curvettings." *

In the country of the Cape, the value of the agile form and powers of endurance of the African Ox, are shown in the services he performs. These oxen are used for carrying burdens, in the manner of mules and pack-horses in other countries. A traveller, describing this employment, observes: "We proceeded nearly the whole way at a brisk step, sometimes trotting, and at other times galloping, while the three bushmen, who drove the pack-oxen on before us, hurried them over the rocky ground at so extraordinary a rate, that, even on horseback, I found it not easy to keep up with them; and often, when the surface was so thickly covered with stones and large fragments of rock, that my horse could scarcely find where to place his foot, I was obliged to call out to them to slacken their pace." †

These oxen are likewise trained to the saddle. They are broken in, we are told, when they are about a year old. A slit being made in the cartilage between the nostrils, large enough to admit the finger, a strong stick, stripped of its bark, is passed through, and to each end of it is fixed a thong of hide, of length sufficient to reach round the neck, and serve as reins. The saddle consists of sheep skins with the wool on, and the stirrups of a thong across the saddle, with loops for the feet. While the animal's nose is still sore, he is mounted and put in training, and, in a week or two, is generally rendered sufficiently obedient to the rider. "The facility and adroitness," says Mr BURCHELL, "with which the Hottentots manage the Ox, has often excited my admiration. It is made to walk, trot, or gallop, at the will of its master; and being longer legged, and rather more lightly made than the Ox in England, travels with greater ease and expedition, walking three or four miles in an hour, trotting five, and galloping, on an average, seven or eight." These oxen are likewise used in the drawing of those covered waggons which the Dutch settlers have

* Travels in Africa, by Major DENHAM and Captain CLAPPERTON.

† BURCHELL'S Travels in Africa.

HISTORY.

introduced, and with which they transport their merchandise, and perform their long journeys from the interior. These waggons, though now much smaller than those used by the earlier boors, are still very weighty vehicles, drawn by teams of ten or twelve oxen. They are usually driven by a Hottentot, who manages his enormous team with perfect skill, and without the aid of reins. He sits behind, holding in his hand a tremendous whip of plaited thong, the handle of which is twelve or fourteen feet in length. He uses it with ease, cracking it loudly over the heads of the animals, and, when necessary, hitting an offending bullock: but his chief instrument of guidance is the voice; he speaks to the animals by name, directing them to the right or left, to stop or to quicken their pace, and enforcing his commands, when necessary, by the stroke of his terrible lash. When the team is large, a boy, usually a Hottentot, leads the foremost oxen by a thong fastened about their horns.

But to turn from the Oxen of distant countries, to those whose economical uses are so important in the civilized nations of Europe, we find that the animals, though agreeing in all the common characters which we assign to a species, yet very greatly differ in their temperament, form, and uses, with the physical condition of the countries in which they are reared, and the artificial treatment to which they are subjected. It is upon the supplies of food, that the size and strength of the animals seem mainly to depend. Wherever food is supplied in abundance, the Ox becomes enlarged in bulk; and wherever food is deficient, whatever be the nature of the climate, his size and strength become less. The Ox of Barbary is as diminutive as that of the Highlands of Scotland, because the grasses, his natural food, are burned up during a great part of the year, leaving plants for him to subsist upon as innutritious as the heaths of the northern mountains. But where the grasses abound, and where the heat of the climate is not sufficiently great to wither them up during a great part of the year, the Ox assumes an entirely different character with respect to magnitude and strength. The largest Oxen in the world are to be found extending from the mountains of Taurus westward by the Ukraine, and the rich valley of the Danube, through Hungary, the more fertile parts of Germany, part of Denmark, Holland, and to England. But in the richer parts of other countries on either side of this tract, as in the Maremma of Italy, and the finer valleys of Switzerland, and in certain parts of Spain and France, the size of the animals enlarges, and this always in proportion to the natural fertility of the pastures. Art, indeed, by supplying cultivated food, can remedy the effects of natural scarcity, but, in a general sense, we find that always the larger breeds are formed in countries of abundant herbage.

The British Islands present, in the productiveness of the soil, such extremes of fertility and barrenness, as enable us to mark the constancy of this law in a greater degree perhaps than in any other country of the same extent. Over the more elevated parts of the country, where the heaths, carices, and innutritious junci, form the principal part of the herbage, the Oxen are of small stature: as the grasses and leguminous herbage plants become mixed with the others, the size and form of the Oxen become enlarged, and still more when artificial food is added to the natural; and in the richest plains of all, where the natural productions of the soil and the resources of continued cultivation are combined, the animals acquire their greatest development of form. The Ox of the Sutherland mountains, and the Ox of the Yorkshire vales, present to the eye such a diversity of size and aspect, that we might almost hold them to be distinct species, did we not know that these extremes are connected by all the intervening gradations from the smallest to the largest, and that in all the essential characters which can be regarded as specific they are the same. In this country, then, we may be said to possess two general classes of breeds; first, those which are proper to the more mountainous and less fertile districts; and, secondly, those which are proper to the plains and richer country. The first class comprehends the breeds of Wales, of the mountains of Scotland, and of the high lands of Ireland, as the Pembroke, the West Highland, the Kerry; the second comprehends the Long-horned breed and its varieties, the highly cultivated breed of Short-horns, and the Hereford: and, again, there is a class of breeds intermediate between the smaller breeds of the mountains and the larger races of the plains, as the Galloway, the Angus, and the beautiful breed of North Devon.

But, besides the effects of the natural and acquired fertility of districts in modifying the form and characters of these animals, so as to form varieties, art and a fitting selection of the breeding parents exercise an influence scarcely less important. Experience shows that the characters of the Ox, as of all animals subjected to domestication, are communicated with surprising constancy to the young, and become permanent by reproduction between similar individuals. Not only are the properties of form so transmitted, but those peculiarities of temperament which render the animals fitted to particular uses, as for the exertion of strength in the yoke, for the secretion of fat, or the production of milk. Besides, then, the characters of breeds which are the result of natural causes, there is a class of characters the result of breeding and artificial treatment. Some of the finest of the breeds of England may be termed artificial, with relation to the means employed to give them their distinctive characters: such was the variety of the Long-horned breed formed by Bakewell, such is the modern Durham improved by Colling, and such is the highly esteemed breed of Hereford, perfected by Tomkins. These breeds, the finest in the world with respect to their economical uses, although bearing an affinity to the parent stocks from which they were derived, have had those peculiar properties which fit them for the

HISTORY.

uses for which they are designed mainly communicated by the art of the breeder. They will be all treated of in detail in the sequel; but it will be seen that, to introduce them before the more natural breeds are described, would be to invert the due order of description. The larger and finer races occupy the attention of a numerous class of skilful breeders; but others are of high importance, as occupying extensive tracts, and affording a large proportion of the supplies of the animal food of the country; and a knowledge of such races is essential to those who would bring enlarged and liberal views to the investigation of this source of public industry and wealth.

Of the properties which artificial breeding is employed to call forth, that which holds the first place in this country is, an early maturity of the animal, and a tendency to the secretion of fat. The production of milk is likewise important, and particular breeds are valued for the dairy; but, generally speaking, it is to the production of flesh as human food that the aim of breeders has been mainly directed in this country. Even when Oxen are used for labour, the breeder looks to fattening as the ultimate end, and therefore directs his attention to the development of that property rather than to that of mere size and strength.

The natural form of the Ox differs greatly from that of the Horse, to be hereafter described, and there is an equal divergence in those characters of form which we endeavour to communicate to the animals respectively with the design of suiting them to our uses. In the Horse we require the exertion of physical force, for the carrying of loads, for the drawing of weights, or for rapid motion. These purposes may be also sought for in the Ox intended for labour, but almost always, as has been said, the purpose of rearing the Ox in this country is the production of human food. The Horse, when viewed in profile, stands, exclusively of his head and neck, nearly within a square; the Ox, under the same circumstances, stands within a rectangle. The body of the Horse, independent of his limbs, may, for certain purposes, occupy too much of the square, and be otherwise too much loaded with muscle and fat. In the Ox, cultivated for food, these characters never exist to the degree of being defects; the greater the volume of fatty and fleshy substance which his body bears, and the larger the space of the rectangle which his body fills in proportion to his limbs, the more adapted is his form to the uses to which he is to be applied. In all cases, then, of an Ox to be fattened, we desire that the body shall be large in proportion to the limbs; or, in other words, that the limbs shall be short in proportion to the body.

The muscular tissue or flesh of an animal consists of a series of fine fibres or threads. These fibres united form fasciculi or bundles, which united form larger fasciculi. The fibres and fasciculi are separated by a fine intervening tissue, in which is secreted the oily substance, fat. This latter secretion, then, is intermingled with the muscular or fleshy substance; and it is found in large quantity beneath the skin and the muscular tissue connected with it, and surrounds or is intermingled with the various viscera within the body, as the intestines, the heart, the kidneys, and other organs. It affords nourishment to the system, is exhausted when the animal is deprived of food, and increases largely in quantity when the animal receives abundant sustenance.

The muscular tissue or flesh grows with the animal, and is essential to its existence and power of motion. When it arrives at its full growth, little further addition can be made to it by means of food. But it is otherwise with the fatty matter which surrounds and is intermingled with its substance. When the food which the animal assimilates by the action of its organs of nutrition and circulation is no longer needed to form muscle and bone, it is converted into fat; the muscles become enlarged, and the integuments extended, and the accumulation of fat takes place in great quantity within the trunk. By merely feeding an animal we may not have the power of increasing its muscular substance, but we have a great power over the increase of the fatty matter, which, along with the fleshy fibre, forms food.

Now a certain set of characters indicates the property in the Ox, as in other animals, of arriving speedily at maturity of bone and muscle, and of readily secreting fat. As the property of quickly assimilating nourishment depends on the action of the digestive and respiratory organs, so it may be inferred that a large chest for containing the organs of respiration, and a capacious trunk for containing the stomach and other viscera employed in digestion, are connected with the property of easy digestion and assimilation. This we are likewise entitled to infer from effects observed; for, in every case of a healthy animal, we find the property of fattening quickly combined with an expanded chest and capacious body. Further, as an indication of the property of secreting fat, there should be an absence of thickness, or coarseness, as it is termed, of the bones of the extremities, as of the head, limbs, and caudal vertebræ, or tail. A thick and large head, massy limbs below the hock and knee, and a thick tail, may indicate strength and large muscles, but they do not manifest that peculiar delicacy which experience shows to exist in an animal that can be fattened with facility. And, besides those indications of a tendency to fatten readily which are exhibited by the external form of the animal, there is one of essential importance indicated by the touch. The skin should be soft, and, as it were, expansive. This property differs from mere thinness of the integuments, which, as indicative of want of hardness, would be regarded as a defect. It is a softness combined with elasticity, conveying the idea of a fine membrane spread over a soft cushion. The difference between the mellow feel, as it has been termed, of an animal which fattens readily, and of the hard inexpansive skin of an animal which does not possess this property, is readily discriminated.

CONTENTS

OF

VOLUME II.

III.—THE SHEEP.

HISTORY.

The Species of the Ovine family existing in a wild state.—Opinions regarding the original of the Domestic Sheep.—The Sheep subjected to domestication from periods seemingly coeval with human societies.—Supposed diffusion of the races of Sheep from a common centre.—Early knowledge of the people of the East of the loom, and the art of dyeing.—Natural characters of the Sheep, and its habits under the influence of domestication.—The Wool of Sheep; its properties and colour.—Diversities of the races of Sheep.—The Broad-tailed Sheep of Western Asia; the Steatopyga, or Fat-rumped Sheep of the countries of the Caspian; the Sheep of Persia, of the shores of the Red Sea, of Tartary, and Northern Europe.—The Sheep of European Turkey, and Greece, of Wallachia and the countries of the Danube, of ancient and modern Italy, of Spain, of the British Islands, ... Pages 1–6

1.—BREEDS OF THE ZETLAND AND ORKNEY ISLANDS.

These wild Sheep a variety of the Short-tailed race of Northern Europe; possessed of a fur consisting partly of hair and partly of fine wool.—Food, habits, and treatment of Sheep; their comparative economical value; and the means which exist of improving them, 7–8

2.—THE BREED OF THE HIGHER WELSH MOUNTAINS.

Distinct from the Short-tailed race of the Zetland Islands; its small size, wild habits, and rude condition.—Causes why it remains distinct from the other races of the country.—Change of form by being naturalized in a lower range of pastures.—Connection of other Sheep of Wales with the wild race of the mountains, . 9–10

3.—THE SOFT-WOOLLED SHEEP OF WALES.

Distinct from the race of the Higher Mountains.—Description of the Breed; its diminutive size, and wild and restless habits; the excellence of its mutton, and softness of its wool.—The Anglesea and Old Radnor Breeds.—The means of improving the Sheep-husbandry of Wales, by crossing the native breeds, or the substitution of superior races, ... 11–12

4.—THE BREED OF THE WICKLOW MOUNTAINS.

Adaptation of the soil and climate of Ireland to the rearing of Sheep.—The breeds of the country divided into those of the mountains and those of the plains.—Description of the Breed of the Wicklow Mountains; its affinity with the Soft-woolled Sheep of Wales; its small size, wild habits, and the good quality of its mutton.—Properties of the females, and adaptation to the rearing of House-Lambs.—Continual diminution in number of the pure breed by neglect, and the effects of crossing, ... 13–14

5.—THE KERRY BREED.

Naturalized in the humid mountains of the west of Ireland.—Description of the Breed; its size larger than that of the breeds of Wales; the wildness of its temper; its wool largely mixed with hair, and its form more nearly resembling the antelopes, than any other race of British Sheep.—Notices of the former state of Ireland; of the changes which it has undergone by the destruction of its forests; of the defective relations between landlord and tenant; and the effects on the cultivation of Sheep, the progress of industry, and the condition of the rural population, ... 15–16

6.—THE FOREST BREEDS OF ENGLAND.

Ancient forests of England; their great extent, and progressive diminution.—General characters of the races of Sheep inhabiting the forests.—The Breeds of Exmoor and Dartmoor, producing a long soft wool, like that of the Sheep of Wales, and noted for the excellence of their mutton.—Description of these Breeds.—Diminution of their numbers by the effects of crossing, or the substitution of superior races.—Notices of other Forest Breeds now disappearing or extinct, ... 17–18

7.—THE BLACK-FACED HEATH BREED.

PAGE.

Derived from the heathy hills stretching from Derbyshire northwards, and now extended over all the higher mountains of Scotland.—Description of the Breed; its distinctive characters; its boldness, hardiness, and adaptation to a country of heaths.—Nature of its wool, approaching more to the character of hair than that of any other of the native races.—Methods of rearing and treating these Sheep in the mountainous countries which they inhabit.—Economical importance of the breed, and the means of improving it, 19–22

8.—THE CHEVIOT BREED.

Derivation from a range of grassy mountains in the north of England; distinct from the Black-faced Heath Breed; bearing fine wool, and resembling in its form the races of the lower country.—Description of the Cheviot Breed; its hardiness, adaptation to a country of mountains where the grasses are produced, and its wide diffusion.—The modes of rearing and treating the Sheep in the countries where they are cultivated.—The modes of improving the mountain pastures of these Sheep; and adding to the supplies of food, by enclosing, by the planting of wood, by the forming of pens for shelter, by draining, and by irrigation.—The terrible tempests and falls of snow in these elevated countries; the danger to the animals, and the means of protection.—The great economical importance of this breed, and the modes of improving it.—The intermixture of the blood of other races, and the effects, . . . 23–30

9.—THE OLD NORFOLK BREED.

Derivation of the Old Norfolk Breed from the high lands of Suffolk, Norfolk, and Cambridge.—Description of the Breed; its affinity in general characters with the Black-faced Heath Breed, but with a difference in the nature of the wool, which is hairy in the one race, and soft and fitted for felting in the other.—The useful qualities of the breed, and its defects.—The system of crossing, for the purpose of obtaining lambs superior to the native stock,—and the effects of this system in diminishing the number of the pure breed.—

HISTORY.

These characters,—the broad chest and expanded trunk, the fineness of the bones of the extremities, and the soft expansive integuments,—may be said to be universal as indications of the property of secreting the fatty tissue. They extend to all animals which we are in use to domesticate, to the Horse, the Sheep, the Goat, the Hog, the Rabbit, the Dog, nay, it is believed, to the human species. Keeping in view those general principles, established by the experience of all breeders, the particular points of conformation which adapt the animal to our uses may be considered.

The head should be somewhat small, and rather elongated than short and thick. But, in the bull, the forehead is naturally more broad than in the female. When the head of the bull approaches to the narrow and elongated form of that of the female, he may be docile, and apt to fatten readily, but he will have lost too much of his masculine character, and may give birth to too delicate a progeny. Even in the refinement of breeding, therefore, we should desire to see the bull possess so much of the masculine characters as to communicate a sufficient degree of strength and hardihood to his descendants. On the other hand, should the head of the female approach too much to the masculine character of the bull, we have reason to infer from experience, that she will be deficient in the faculty of yielding milk.

The bony ridge on the summit of the head from which the horns proceed should be somewhat raised, so that the horns shall appear to be slightly attached to the head. The length and size of the horns vary with temperament and race, and in certain breeds they do not exist. But, *cæteris paribus*, it is to be desired that the horns shall be delicate, rather than coarse, and thick; great thickness and coarseness of horn being connected with coarseness of the cuticular system.

The neck, in the natural state, must be of such length that the animal can reach the ground and collect his food; but if the limbs be short, so will the neck be in proportion to the size of the trunk; and hence shortness of neck, with relation to the size of the body, is indicative of the property of fattening. But an undue shortness of neck, like all deviations from the natural form, may indicate likewise diminution of strength and hardiness. By refinement in breeding, and by giving the animal his food from raised stalls, his neck may become so short as to render him unable to reach the ground and collect his natural sustenance.

A capacious trunk being connected with the property of fattening, the ribs should be widely arched, rising almost horizontally from the spine, and then bending downwards with a sweep, producing a wide and flat back and round sides. This is an important character in the Ox, in which a narrowness of back and flatness of sides scarce ever consist with the property of easy fattening. In the Horse this conformation indicates weakness, and in no less degree it indicates in the Ox the want of that vigour which is connected with the power to fatten.

The shoulders should be broad at the top, and well covered with muscle. The spines of the back and loins should be so enveloped in muscle, as to cause the back to appear nearly straight from the neck backwards. The back and loins should be somewhat long; for although a short and compact body indicates greater robustness and tendency to fatten, yet length of carcase increases the space for muscles, and consequently the weight of the animal. Breeders generally look to length of trunk as an indication of economical value; yet if this character be not combined with others which are good, as depth and roundness of trunk, and strength and breadth of back and loins, there will be more of loss by the diminished tendency to fatten, than of gain by the larger extent of muscular surface.

The size of the haunch of the Ox is not connected with the property of fattening, but it is connected in an important degree with the weight and economical value of the animal. The haunch commences with the iliac portion of the pelvis, commonly called the hook or huckle bones protuberances. These should appear as if nearly on a level with the back, and they should be distant from one another, indicating breadth over the loins. The upper line of the haunch should be long and straight to the tail. The femur, or bone of the thigh, should be long, so that the size of the haunch shall be increased, and a larger space afforded for muscular surface. By enlarging the haunch in all directions, the weight of the animal is increased, and that in a manner which does not, as in the case of extending the back and loins, tend to produce weakness. Further, the flesh of this part of the animal, including the rump, sells at a high comparative price in this country. For these reasons, a long, deep, and broad hind-quarter, is looked to as one of the good points of the Ox by all breeders.

From the broadness of the chest before, and breadth of the trunk, it follows that the fore and hinder legs respectively shall stand far asunder. This is another point of the Ox always to be looked to, as indicative of that lateral expansion of the trunk which is to be sought for in an animal to be fattened.

The limbs, it has been said, should be relatively short, but the fore-arm to the knee should be long in proportion to the part from the knee to the hoof; and, in like manner, in the hinder limbs, the leg to the hock should be long in proportion to the part below the hock. This character is desired in the Ox, *first*, because the parts above the knee and hock respectively contain muscle, while those below consist almost entirely of tendon; *secondly*, because the character indicates that delicacy of the extremities which experience shows to consist with the property of fattening.

HISTORY.

The Ox, when viewed in profile, should exhibit a square and massy form, and should present the same aspect when viewed from behind; the muscles in the inside of the leg, forming what is technically called the twist, should swell well out. The large flat muscles which surround the abdomen, should be of sufficient strength to keep the belly from hanging. Generally, the muscular parts should appear to pass without abruptness from the one to the other. Thus, the muscles of the neck should gradually expand into those of the breast, and these again into the shoulder, while the muscles of the shoulder should pass into those behind, so as to leave little hollow. The flanks behind the elbow, and in front of the stifle bone, should present little appearance of hollowness.

The following are the popular characters usually given as indicative of the property of fattening, and the suitable form of the Ox; from which it will be seen, that the results of observation and experience accord with those which may be derived from an examination of the functions and structure of the parts.

1. The head shall be fine, somewhat long, and tapering to the muscle, which shall be thin.
2. The horns shall be fine and pointed, and placed on the summit of the head; the ears shall be thin; the eyes prominent and clear.
3. The neck shall be free from coarseness, large where it joins the shoulder and breast, and tapering to the head.
4. The breast shall be wide, and project well in front of the fore-limbs.
5. The shoulder shall be broad, but join without abruptness to the neck before and to the chine behind.
6. The back and loins shall be straight, wide, and flat.
7. The girth behind the shoulders shall be large, and the ribs well arched.
8. The hook-bones shall be far apart, and nearly on a level with the back-bone; from the hook-bones to the rump the quarter shall be long, broad, and straight.
9. The tail shall begin on a level with the back, be broad at the top and small towards the extremity.
10. The legs shall be short, fleshy to the knee and hock, and below the joints flat and thin, and the hoofs shall be small.
11. The skin shall be soft to the touch, the belly shall not hang down, and the flanks shall be well filled up.

These are the principal characters which indicate the property of secreting the fatty tissue; those which indicate in the female the faculty of yielding milk, differ in several respects. The extreme broadness of chest, so important in the case of the fattening animal, is not absolutely required in the case of the milch cow, although there is nothing inconsistent between this conformation and the property of yielding much milk. But the points essential to the milch cow are rather connected with the hinder than with the anterior extremities. The loins should be wide, and the trunk deep from the loins to the mammæ. This form existing, the more the cow possesses of the other characters the better is she fitted to combine the property of milking with that of fattening. In a cow designed for breeding animals to be fattened, the milking property is only secondary, yet a cow will produce the better calves that she is wide and deep in the lumbar region. A purely dairy cow should have a soft skin, clear eyes, and a narrow and elongated head; the udder should be of good size, but with sufficient muscular power to prevent its being flaccid or pendent. The superficial veins near the udder should be well marked, but especially the large vein which runs along the lower side of the belly on each side, termed the subcutaneous abdominal vein. This last is commonly called the milk-vein, though it is not directly connected with the mammary organs.

The skin of the Ox, it has been said, should be soft to the touch, but not thin; it should likewise be unctuous, and well covered with soft hair. By refinement in breeding, and especially by breeding from animals near of blood, the hair becomes short and scanty; but when this is so, we are reminded that we are deviating from the natural characters in a point connected with hardiness of constitution. The colour of the hair depends upon causes which we have not yet been able to trace. In this country, certain races tend to the black colour, while others are never found but of the lighter. The Short-horned and Hereford breeds are never found but red or white, while the Long-horned, like the cattle of the mountains, are often black. It does not appear that the colour of the hair is of very great moment with regard to the hardiness of the animal, though, in cases of high breeding, as in the Short-horned variety, the white colour seems to be a consequence of constitutional deviation from the natural state. The muzzle, in certain breeds, is light or flesh-coloured; in others it is dark.

Drawn by Mr Nicholson R.S.A. from a Painting by Mr Shiels R.S.A.

Drawn on Stone & Printed by Fairland.

WILD OR WHITE FOREST BREED.

Cow 8 Years old, from Haverford West in the County of Pembroke.

THE OX.

THE WILD OR WHITE FOREST BREED.

PLATE I.

COW, Eight Years' Old, from Haverford West, in the County of Pembroke.

Two species of the Bovine Genus inhabited the Old Forests of Europe; the first, the Bison of the Roman writers, the Wisent of the ancient Germans, the Zimbr of the Moldavians, the Zubr of the Poles; the second, a creature supposed to be identical in species with the Domestic Ox, termed Urus by the Roman writers, and Urochs by the older Germans, though the term Urochs or Auerochs has been long applied by German writers to the Bison. The Wild Ox was termed Tur by the Poles, corresponding with the Shur of the Hebrew, the Arabic, and Chaldee; the Tur of the Persian, the Ταυρος of the Greek, the Taurus of the Latin. Further, the people of the East have terms to distinguish the Wild Ox of the woods from that which is in a state of domestication.

The Bison, or Wisent, is the largest of the native quadrupeds of Europe. He was found in the woods of Germany until the eighth century, and until a much later period in the forests of Poland, Lithuania, and Moldavia. In the great forest of Bialowieza, near Varsovia, he is still preserved in considerable herds, under the protection of the Emperor of Russia. He may yet linger in other wilds of the east of Europe; but he is chiefly driven to remoter regions, where he can be secure from violence, —to the woods of Caucasus, and the other mountain forests of Western Asia. It was long believed that this wild and powerful creature was the parent stock of the Domestic Ox. The error of this opinion is now recognised by all naturalists. The species are distinct in habit, external character, and anatomical structure.

Of the existence of the Urus, or Urochs, in the ancient forests of Europe, we have the concurrent testimony of various writers. Julius Cæsar mentions a race of Wild Oxen which existed in the great forests of Germany, which he describes as being of great size and swiftness, and of the figure and size of bulls.* He terms them Uri; and though later writers confound the Urus and Bison, the distinction was known to the Romans, notwithstanding of which it is yet possible that Cæsar confounded the two species. But the Roman writers Pliny, Seneca, Martial, indicate distinctly a Wild Ox natural to Europe, besides the Bison; and writers, at a long subsequent period, have described the Wild Oxen of Europe in a manner which can leave no doubt as to the animals designated. They formed the subject of the chace, and their fierceness and magnitude afforded a theme for the chronicles of the times. In Spain, we have early accounts of the hunting of the Wild Bull; and the passion of the modern Spaniards for the fights of the arena, may have had its origin in these bolder sports. Cuvier quotes the evidence of Gregory of Tours to prove the existence of Wild Oxen amongst the mountains of the Vosges, during the dynasty of the Carlovingian Kings. In England, the adventure of Guy Earl of Warwick with the Dun Cow is famous in traditionary lore. A skull of huge dimensions is yet preserved in Warwick Castle as that of the identical animal which Guy Saxon slew. The skull is doubtless of the fossil species which is yet found in England and other countries; but its preservation, and the tradition attending it, show the belief of the existence in those ages of a formidable race of oxen in the wild state. About the middle of the twelfth century, we have the testimony of Fitz-Stephen, that Wild Oxen, which he terms Uri sylvestres, infested the great forests around London. John Leslie, Bishop of Ross, who wrote in 1598, states that the Wild Ox, Bos sylvestris, was found in the woods of Scotland; that it was of a white colour, had a thick mane resembling a lion's, that it was wild and savage, and, when irritated, rushed upon the hunters, overthrew the horses, and despised the attacks of the fiercest dogs. He says that it had formerly abounded in the Sylva Caledonia, but was then only to be found at Stirling, Cumbernauld, and Kincardine.

Hector Boece, in his History and Chronicles of Scotland, bears testimony to the like effect:—"At this toun" (namely Stirling), "began the gret wod of Calidon. This wod of Calidon ran fra Striveling throw Menteith and Stratherne, to Atholl

* Cæsar de Bello Gallico, vi. 28.

THE WILD OR WHITE FOREST BREED.

and Lochquabir, as PTOLOME writtis in his first table. In this wod wes sum time quhit bullis, with crisp and curland mane, like feirs lionis, and thoucht thay semit meek and tame in the remanent figure of thair bodyis, thay wer mair wild than ony uthir beistis, and had sic hatrent aganis the societe and cumpany of men, that thay come nevir in the wodis, nor lesuris quhair thay fand ony feit or haind thairof, and moy dayis eftir, thay eit nocht of the herbis that wer twichit or handillitt be men. Thir bullis wer sa wild, that thay wer nevir tane but slight and crafty laubour, and sa impacient that, eftir thair taking, thay deit for importable doloure. Als sone as ony man invadit thir bullis, thay ruschit with so terrible preis on him, that thay dang him to the eird, takand na feir of houndis, scharp lancis, nor uthir maist penitrive wapinnis." "And thoucht thir bullis wer bred in sindry boundis of the Calidon Wod, now, be continewal hunting and lust of insolent men, thay ar distroyit in all partis of Scotland, and nane of thaim left bot allanerlie in Cumarnald." *

In this their last retreat, they were subjected to persecution:—In a remarkable document written in 1570–71, the writer, describing the aggressions of the King's party, complains of the destruction of the Deer in the forest of Cumbernauld, "and the quhit ky and bullis of the said forrest, to the gryt destructione of polecie, and hinder of the commonweill. For that kynd of ky and bullis hes bein keipit thir money zeiris in the said forrest, and the like was not mantenit in ony vther partis of the Ile of Albion." †

Thus were the Uri of the Scottish forests driven from the woods which they inhabited, destroyed or made captive. Part, indeed, had been preserved in some of the Parks attached to the Religious houses, their flesh being more esteemed than that of "their awin tame bestial." But with the destruction of the Ancient Establishments, the oxen were dispersed, destroyed, or mingled with the common races. In a few places only they seem to have been preserved without intermixture,—chiefly in the Parks of the DUKES of QUEENSBERRY at Drumlanrig, and of the DUKES of HAMILTON, called the Chace of Cadzow. Those at Drumlanrig were, many years ago, destroyed by an order of the late DUKE of QUEENSBERRY: those at the noble park of Hamilton are yet in existence, preserved with care. They have lost the thick mane ascribed to them by the early writers, and the females have generally become destitute of horns, but all their other characters show them indubitably to be the descendants of the ancient race. They are of the size of the cattle of the West Highlands: they are of a dun white colour; the muzzle, the inside of the ears, the tongue, and the hoofs, are black. They are very wild, and cautious of being approached: when suddenly come upon, they scamper off, turn round as if to smell and examine the intruder, and generally gallop in circles, as if meditating an attack. They are not, however, vicious, though some of the bulls have manifested the savage and dogged temper of their race. Some persons have been pursued to trees. One poor bird-catcher, we are informed by Mr PATRICK, when exercising his trade in the forest, was attacked by a savage bull; he had time to save himself by climbing up a tree: he had there an opportunity of observing the habits of his assailant. The furious creature seeemed to quiver with rage, and frequently attacked the tree with his head and hoofs. Finding his efforts vain, he left off the attempt, and began to browse at some distance. The prisoner then tried to descend, that he might make his escape; but the watchful brute was at his post in an instant, and the poor man was not relieved until after many hours, on assistance arriving. Another individual was attacked on a summer evening: he was fortunate in reaching a tree, but was watched by the implacable brute throughout the whole night, and until late on the following day. Those examples are remarkable, showing in the Wild Ox that savage, pertinacious, and implacable temper, which we know some others of the Bovine family display in their state of nature. The females conceal their calves amongst thickets or long grass, returning to them cautiously twice or thrice in the day to suckle them. The little creatures exhibit the instincts of their race: when suddenly approached, they manifest extreme trepidation, throwing their ears close back upon their necks, and squatting upon the ground. The only method of killing the older animals is by shooting. When the keepers approach for that purpose, the poor creatures seem to be aware of their danger; they gallop away with speed in a dense mass, preserving, we are informed, a profound silence, and keeping close by the coverts and fences: the cows, in the mean time, that have calves, forsake the herd, and repair to the places where their young are concealed, in order to defend them.

The remains of the same remarkable race are to be found in several parks in England, differing only from those described in so far as differences of situation may be supposed to have affected their characters. Of these, the most remarkable are those kept in the ancient park of Chillingham, the property of the EARL of TANKERVILLE. These appear to have remained the nearest in their characters to the original race. The herd at present amounts to about eighty in number, consisting of twenty-five bulls, forty cows, and fifteen steers. The eye-lashes and tips of the horns are black, the muzzle is brown, the inside and a portion of the external part of the ears are reddish-brown, and all the rest of the animal is white. The bulls have merely the rudiments of

---

* History and Chronicles of Scotland, by HECTOR BOECE, translated by JOHN BALLENDEN.

† Illustrations of Scottish History, preserved from Manuscripts, by Sir JOHN GRAHAM DALYELL.

THE WILD OR WHITE FOREST BREED.

manes, consisting of a ridge of coarse hairs upon the neck. The bulls fight for supremacy, and the vanquished submit to the law of superior strength. They are very shy and wild, and start off on the approach of danger: and, when they threaten an attack, they make circles around the object, approaching nearer at each time. LORD TANKERVILLE describes their method of retreat, which is eminently characteristic of their wild habits. Like the Red Deer, they place the inequalities of the ground between them and their pursuers; they set off in a kind of walk, which increases to a trot, and then, having got the ground between them and the object, they retreat at a gallop, availing themselves of the inequalities of the ground in such a manner, that they will traverse the whole park almost without being seen. The females conceal their young, returning to suckle them several times a-day. The calves have the instinctive wildness of the parents, couching on the ground like fawns when surprised. It is said that, when one of the herd is wounded or disabled from age, the rest will set upon and destroy it; a trait common to other ruminants,—to the Deer,—and even to the Sheep in its wildest and rudest state. These animals can be all readily domesticated. When taken young, and treated in the manner of the common oxen, they assume entirely the habits of the domestic race.

One circumstance common to both these herds of Wild Oxen, is the tendency of the young to deviate from the "markings," as it is termed, of the parents; that is, to become altogether black, or altogether white, or to have black ears in place of red ears, and so on: these animals are destroyed, and, therefore, the interesting part of the experiment is interrupted of showing what characters they would assume were they to be left in the natural state. Nothing is better known to breeders than that, by such means, all the characters of colour can be preserved in any breed; thus the North Devon can be kept all red, the Pembroke all black, and so on; and this is done from generation to generation, by the course pursued in the case of these wild herds.

The other parks of England in which the remains of this race have been or are yet preserved, are at Chartley in Staffordshire, at Wollaton in Nottinghamshire, at Gisburne in Craven, at Limehall in Cheshire, at Ribbesdale in Yorkshire, and at Burton Constable in Yorkshire.

The wild cattle at Chartley Park, the property of LORD FERRERS, resemble those at Chillingham, but they are of larger size, and have the muzzles and ears black. They frequently tend to become entirely black; and a singular superstition prevails in the vicinity, that, when a black calf is born, some calamity impends over the noble house of Ferrers. All the black calves are destroyed, and thus, as in the other cases, we are unable to know what ultimate character of colour the race would assume. This park is a very ancient one: it belonged to DEVEREUX, EARL OF ESSEX, and the cattle have existed in it from time immemorial.

Those which are kept at Ribbesdale are destitute of horns. Polled varieties are still to be found between Stafford and Lichfield in a state of perfect domestication. They are of good size, and are valued by the farmers as dairy cows.

The breed at Burton Constable, situated in the district of Holderness, perished all in the course of last century of an epidemic disorder. They were of large size,—a consequence of the richness of the pastures in which they fed. They had the ears, muzzle, and tip of the tail black.

Other herds of this race appear to have existed in different parts of England, but they have merged in the common breeds of the country, and the records of them have been lost. Fortunately, however, for the inquiries of the naturalist, the same animals are yet to be found in that part of the kingdom where we naturally should look for the existence of an indigenous race of cattle, namely, Wales, under such circumstances as to set at rest the questions that have been agitated regarding the relation which exists between them and the domestic race.

The ancient Britons, it is known, when their country was overwhelmed by the Roman power, made a brave defence in the mountains beyond the Severn, preserving their flocks and herds, in all times the cherished possession of the Celtic nations. Although overrun for a season by the Roman legions, they defended themselves against the Saxon nations with determined courage, and only yielded at length, at a long posterior period, to the English power when it became too strong to be resisted; and even then they retained their customs, their language, and their national feelings. It is here, as in the countries beyond the Grampians, that we must look for the older races of the domestic oxen of the country.

It appears from various notices, that a race of cattle, similar to that which we now find at Chillingham Park and elsewhere, existed in Wales so early as the 10th century. HOWELL DHA, surnamed the GOOD, describes certain cattle of Wales as being white, and having red ears. At a subsequent period, we are informed that, as a compensation for offences committed against certain Princes of Wales, there were demanded 100 white cows with red ears; but that, if the cattle were of a black colour, 150 were to be given. When the Princes of Wales were compelled to render homage to the Kings of England, the same kinds of cattle, we are informed, were sometimes rendered in acknowledgment of the sovereignty. In an old history of Flanders, quoted by HOLINSHED, it is stated that the lady of the LORD DE BREUSE, in order to appease KING JOHN, whom she and her husband had mortally offended, sent to the QUEEN a present of 400 kine and one bull, all of white colour except the ears, which were red.

The individuals of this race yet existing in Wales are found chiefly in the county of Pembroke, where they have been kept

THE WILD OR WHITE FOREST BREED.

by some individuals perfectly pure, as a part of their regular farm-stock. Until a period comparatively recent, they were very numerous; and persons are yet living in the county of Pembroke, who remember when they were driven in droves to the pastures of the Severn, and the neighbouring markets. Their whole essential characters are the same as those at Chillingham and Chartley Park, and elsewhere. Their horns are white, tipped with black, and extended and turned upwards in the manner distinctive of the wild breed. The inside of the ears and the muzzle are black, and their feet are black to the fetlock joint. Their skin is unctuous, and of a deep-toned yellow colour. Individuals of this race are sometimes born entirely black, and then they are not to be distinguished from the other cattle of the mountains.

That the same race is to be found on the Continent of Europe, cannot be doubted; and we should probably have had accounts of it either in a wild or reclaimed state, had naturalists been aware of its distinguishing characters. In the defiles of the Pyrenees, cattle, altogether wild, have been observed by English sportsmen, marked in the same manner as the cattle of the parks, and in no respect to be distinguished from them.

The peculiar colour and marking which this race assumes and retains, has been supposed by some to indicate a very permanent variety, or even species. But colour, as is well known to naturalists, is of all the external characters of animals the least to be regarded as indicative of permanent distinctions; and, in the case of these oxen, it has been seen that the character itself is not constant. It may seem remarkable, that these animals, in their wild state, should be all white, with coloured muzzles and ears; but this is not more remarkable than that all Boars in the wild state should be brown, or all Turkeys in the wild state black, with white tips to their wings. The colour we may suppose is that which the animals tended to assume in a wooded country in the climate of Albion. Under other conditions of temperature and food, the colour of the same variety might become black, with a peculiar marking equally constant. An ancient writer, speaking of Uri in the woods of Poland, describes them as black, with a white streak along the chine. The European cattle, which have become nearly wild in the Pampas of South America, have assumed a uniform marking of black and brown, from which they scarce ever deviate. In the North Highlands of Scotland the prevailing colour of the cattle is black: but sometimes individuals are born white, with coloured ears and muzzle, so nearly resembling the wild cattle of the parks, that they would be mistaken for them.

The habits of the wild race have been supposed to present an impassable distinction between it and the tame; but this difference assuredly does not constitute a distinction of species. It is known that the instincts and habits of animals are suited to the condition in which they are placed, and change with that condition. The Wild Hog, a bold and powerful creature in his state of liberty, is no sooner submitted to domestication, than his habits adapt themselves to his new condition, and he communicates to his offspring all the habits which fit them for a state of slavery. So it could be shown is it with other animals subjected to domestication. The Wild Oxen of the parks, breeding solely with one another, and living, in so far as their confined condition will allow, in the natural state, retain the habits and instincts proper to them in that condition, and communicate these to their young. Hence the young calves couch themselves on the ground, and tremble when approached, but these characters disappear in the next generation when the animals are domesticated: hence the mothers conceal their calves, and return to suckle them at stated times, but the same thing has been observed in the case of cows of the Scotch mountains when left in a state of liberty. All the habits of these animals, in short, including that of goring to death their wounded companions, are those of the wild state, and disappear when they are reclaimed.

Thus we have all the evidence which the question admits of, that no real distinction exists between the Wild Oxen of the parks, and those which have for ages been subjected to domestication; and that the origin of the Domestic Ox must be sought for not in extinct species, but in a race yet existing.

The figure, Plate I., represents a Cow of the White Forest Breed, as preserved in the domestic state, and similar to many yet existing in Wales. In a subsequent number, an example, through the kind permission of the Earl of Tankerville, will be given of a Bull of the Wild Oxen of the Parks.

Drawn by Mr Nicholson R.S.A. from a Painting by Mr Shiels. R.S.A

Drawn on Stone & Printed by Lizars

PEMBROKE BREED.

Bull, 3 Years old bred by Mr Innes Achland of Boulston;—Cow 5 Years old bred by

THE PEMBROKE BREED.

PLATE II.

1. BULL, Three Years' Old, Bred by ROBERT INNES ACKLAND, Esq. of Boulston.
2. COW, Five Years' Old, Bred by Mr INNES ACKLAND.

The Pembroke Breed of Cattle is proper to the county of that name, which occupies the south-western extremity of the Principality. But the breed extends to all the neighbouring districts, and may be said to be the type of the whole Mountain Breeds of Wales. It has been seen that the White Forest Breed, by the mere change of colour, becomes similar to the modern Pembrokes, and is indeed identical with them. The latter possess the distinctive horns of the Wild Breed, and the yellow, unctuous skin which characterizes it. The horns are fine, tapering, turned upwards at the points, and tipped with black, and the yellowness of the skin appears as a deep orange, nearly black, on the inside of the ears, the mammæ and other naked parts. The skin is soft, and well covered with hair,—a character which always indicates a humid climate. The colour preferred by the breeders is black, and, in breeding, they adhere strictly to this colour. They regard a mixture of white as a mark of impurity, though it is manifest that it is not so, but a tendency to the original character of the race. The size of the Pembroke is that of the larger class of the breed of the West Highlands of Scotland. They have naturally a light hind-quarter, which is a character common to other mountain breeds, but this is a defect which a due attention to breeding corrects. Their flesh is excellent, the fat being well mixed with the muscular parts. They produce a large quantity of tallow, and on this account are esteemed by the butchers; and great numbers of them are fattened in the rich valley of the Severn and elsewhere, for the supply of the market of London. They are hardy, and subsist well on scanty food: they are tolerably good feeders, and soon assume an appearance of maturity and age. The females have fair milking qualities, and the cows are accordingly esteemed in all parts of Wales for the domestic dairy. The dark orange colour of the skin, approaching to black, is deemed an important indication of the milking properties of the cow.

The Pembrokes are sometimes used for the purposes of labour, and are regarded as trusty and docile for the yoke. But they are not equal in action to the Devon and Sussex, and they fall short in strength of the larger oxen of the lower country.

This breed has been sometimes crossed by the Devon, the Hereford, and the Glamorgan; but a just estimation of the characters of the breed, will show the error of this species of intermixture. The Pembroke is truly a Mountain Breed, and well adapted to the situations in which it is acclimated, and a mixture of foreign blood takes from its hardiness, and fitness for a country of mountains and scanty herbage.

The other races of the Welsh mountains have more or less of an affinity with the Pembroke, and exhibit the traces of a common origin; but they are most of them smaller in size, lighter in the hind-quarters, and otherwise of inferior form. Such are those of Caernarvon and Merioneth, which are uncultivated in a high degree. The best method of improving these neglected breeds would be crossing with the genuine Pembrokes.

Anglesea is a low insular tract of North Wales, about twenty-four miles by seventeen, separated from Caernarvon by a narrow strait of the sea. It produces the grasses, but yet is of only moderate fertility. It rears a considerable number of cattle, which used to be forced to swim across the straits of Menai, until the noble iron-bridge which now connects the island with the main was formed. During this transit, the younger cattle were often carried several miles by the current, or drifted seaward; and yet the Roman cavalry swam across this strait, when, under PAULINUS SUETONIUS, they attacked this last stronghold of British liberty and Druidical worship. The native cattle of this island are allied in their essential characters to the Pembroke, and manifest a common origin; but they are of larger size and coarser form, having acquired the characters suited to a lower country. The genuine Angleseas are distinguishable by the upright position of the horns, and the orange-yellow colour of the skin. This breed has been much mixed with Long-horns, chiefly from Ireland, and various attempts have been made by individuals to improve the breed by crosses of different kinds. These attempts seem to have been made without system, perseverance, or knowledge of the characters of the native race. They may be said to have produced no beneficial effect upon the cattle of the country, the best of which are manifestly those which approach the nearest to the ancient type. The main end to be aimed at in the improvement of the breed of Anglesea, is to remove that coarseness of form which is characteristic of the race; and this could be effected by a fitting selection of individuals for breeding, from the best and purest of the native breed.

THE PEMBROKE BREED.

Another and important breed of Wales is the Glamorgan; but the improved Glamorgans are to be ranked with the larger oxen of the plains, rather than with those of the mountains. They will be treated of in the sequel, along with the Herefords and other breeds of the lower country.

The parent stock of the Mountain Breeds of Wales, it has been seen, is distinguished by a tapering upright horn. As the mountainous country passes by gradations into the lower, the cattle deviate from the native type, and assume insensibly the character of what are termed Long-horns. This character is indicated by the direction as well as by the length of the horn. It may be considered as a character connected with that thickness of skin which the Ox, under certain circumstances of feeding and treatment, tends to assume; for the corneous system, as could be shown, is intimately connected with the cuticular. It is the character which a very large proportion of the oxen of these Islands had acquired; and, accordingly, of the breeds of this country, the Long-horned, as will be afterwards seen, were the most numerous. They formerly extended over all the midland counties of England, and the plains of Ireland. It is this tendency of the oxen in the central parts of Wales to assume the long-horned character, as well as actual intermixture with the breeds of the plains, that produces that mixture of races which is to be seen in the country. These mixed races are generally of coarse, defective form, and greatly inferior as fattening animals, to those which approach the nearest to the parent stock.

Although Wales is generally a country of mountains, in which the animals reared must mainly depend on the natural pastures, yet it is intersected by many fertile vales, and often the mountains pass by degrees into the richer plains of the lower country. In such cases it is not required that breeders should confine themselves to the smaller cattle of the mountains. They may adopt the breeds which their respective localities enable them to maintain, as the Durham, the Hereford, and the superior class of Glamorgans. In this case their own judgment must guide them in the selection of the kinds of animals best suited to the nature of their respective farms. But, in general, the breeders of Wales would do well to avoid that system of indiscriminate crossing and changing, which prevails in so many parts of the country. A true breed, it is to be observed, is never formed by casual crossing, but by a long perseverance in breeding from similar animals, until a uniform class of characters is acquired and rendered permanent. For this reason, it is generally better to adopt a good breed already formed than to attempt to produce a new one by a mixture of the blood of dissimilar animals.

The Pembroke Breed is well adapted to all the mountainous parts of Wales, and it is important that it should be cultivated with care. It is not necessary that the breeders resort to other races for its improvement. They have merely to apply those principles of selection, which in all other cases have been successful, to render the breed good with relation to the circumstances in which it is reared.

The district of Castle-Martin is that from which the finest of the Pembrokes are at present derived. The breeders in this district strictly adhere to the black colour, which has become at length regarded as indicative of the purity of the breed. This colour has indeed no necessary connexion with the really useful properties of the animals; but having become a test of the purity of the breed, both on the part of the producers and consumers, it is to be believed that the character will on this account be preserved, just as in the case of the North Devons the red colour is retained as an index of the purity of descent. The breeders of the Castle-Martins, however, have fortunately not confined their attention to the secondary character of colour. They have devoted assiduous care to the really useful characters of the breed. Preserving its essential characteristics, they have removed the too great lightness of the hinder quarters, and given that general symmetry of form, which experience shows to have an intimate connexion with the economical properties of all animals cultivated for human food.

WEST HIGHLAND BREED.

Bull. 4 Years old bred by Colonel Mr Niel of Barra. by a Bull bred by Mr Stewart Chesthill. — Heifer bred by Mr Campbell of Caolis. by a Bull bred by Mr Campbell.

IV. THE GOAT.

Natural History of the Goat; and relation of the Caprine with the Antelope tribes on the one side, and the Sheep on the other.—Early subjugation of the Goat, and its diffusion in the countries of Asia and Europe.—The Wild Species of the genus Capra.—The Ibices of the mountains of Asia and Europe; their natural history, and aptitude to submit to domestication.—The Nubian or Abyssinian Ibex.—The Ægagrus of the mountains of Western Asia and Siberia; its natural history, and affinity with the domesticated races.—The Jemlah and Jahral Goats of Central Asia.—The question of the origin of the domesticated races.—The varieties of the domesticated Goat.—The Goats of Thibet—of Tartary to the Arctic regions —of Hindostan and the Turkish dominions in Asia.—The Goat of Angora, and the Goats termed Syrian—the Goats of Africa—the Goats of Europe—of Greece, and the countries of the Mediterranean, of France, and the northern parts of Europe.—Characters and habits of the Goat in the domestic state—the milk, skin, hair, and flesh of the animal.—The Goats of the British Islands.—The Goats of the Highlands of Scotland—of Wales—and the western mountains of Ireland.—Causes of the diminished cultivation of the Goat in Britain.—The economical uses to which the Goat may be rendered subservient, ... Pages 1–8

V. THE HOG.

HISTORY.

Division of the Hog family into three groups,—the first comprehending the Wild Hog, the Babyroussa of the Indian Islands, the Papuan Hog, and the Wood-Swine of Africa,—the second comprehending the Wart-bearing Hogs of Africa,—the third comprehending the Peccaries of America.—Natural history of the several species.—The Wild Hog, the original of the domestic Hogs of Europe, and of the greater part of those of Asia and Africa.—Early subjugation of the Hog, and facility with which the wild animals of the species resign themselves to slavery.—Early history of the Domesticated Hog, and the singular diversities of feeling with regard to the use of his flesh.—His universal extension over the Old Continents, and his multiplication in the New.—Character and habits of the animal, and the erroneous judgments regarding them.—The remarkable changes which his form undergoes under the influence of food and external agencies.—His vast importance as a means of subsistence to the human race, and his amazing powers of increase.—The modes of rearing and fattening the animal with relation to his economical uses, ... 1–6

1.—THE WILD HOG.

The habits of the Wild Hog in the state of nature,—his courage, strength, and boldness, exercised not for the purpose of aggression, but for self-defence.—Chase of the Wild Boar, and the courage and address of the hunters.—The changes that take place in his form and habits when subdued, greater than in any other known animal.—Examination of the form of the Hog in the wild and domesticated state.—Crossing the domesticated breeds with the Wild race, 7–13

2.—THE SIAMESE BREED.

The wide diffusion of this race in the countries of the East.—Description of its form and characters.—The Chinese variety, its large introduction into England, and the effects of the intermixture in modifying the form and characters of the common kinds.—The degree to which the intermixture should be carried with reference to the economical results, ... 13–14

3.—THE OLD ENGLISH BREED.

The general character of the older races.—The Breeds of the Highlands of Scotland, and those of the lower country, with large bodies and pendent ears.—The Breeds of Yorkshire, Lincolnshire, Norfolk, and other eastern counties.—The Breeds of Sussex and Essex, of Northampton, Shropshire, and Hampshire.—The effects of the continued mixture of foreign blood with these and the other races of the country.—Notice of the Breeds of Holland, Belgium, France, Russia, and the United States of America, . . 15–16

4.—THE BERKSHIRE BREED.

Description of the Berkshire Breed, and the effects of crossing and re-crossing.—Its early improvement and present estimation.—The limits to the profitable diminution to the size of the Breed.—The Breeds introduced from the countries of the Mediterranean,—the Maltese, and the Neapolitan.—The Breeds introduced from Africa, ... 17–18

various ways; while, on the other hand, by rearing an inferior breed in situations where one of greater value could be maintained, we deprive ourselves of the profit which the natural or acquired advantages of our situation present. These are errors of practice frequently committed, to the injury of breeders, and the loss of the country.

An error of another kind is the subject of constant observation, the result likewise of imperfect knowledge of the distinctive characters of breeds. For the adaptation of a breed to the situation in which it is to be reared, two general methods may be pursued; either a new breed may be substituted for that which exists, or the old one may have its characters modified or changed by crossing with other races. There are many cases in which scarce an error can be committed in this species of improvement, provided we resort to a really superior race; but there are many other cases in which even this kind of change may be injurious, or attended with doubtful benefit. Animals become gradually adapted to the conditions in which they are placed, and many breeds have accordingly become admirably suited to the natural state of the country in which they have been acclimated. Thus the West Highland Breed of cattle has become suited to a humid climate and a country of mountains; the beautiful breed of North Devon, to a country of lesser altitude and milder climate. In these, and many cases more, an intermixture of stranger blood might destroy the characters which time had imprinted on the stock, and give as the result a progeny inferior in useful properties to either of the parent races. Not only have individual breeders erred in the application of this kind of crossing, but it is certain that several entire breeds have been lost which ought to have been carefully preserved. There are many breeds, indeed, so defective in themselves, that time and capital would have been lost in endeavouring to cultivate them; but not a few, as will be seen in the sequel, might have been improved to the degree required, by mere selection of parents, and attention to the known principles of breeding.

Not only do animals become adapted in constitution, temperament, and habits, to the situations in which they have been naturalized, but characters communicated by art become permanent by continued reproduction. Thus, in the case of the Dairy Breed of Ayrshire, by breeding from females that possess the property of yielding a large quantity of milk, a peculiar breed has been at length formed, exceedingly well suited to the purposes of the dairy, and at the same time hardy and fitted to subsist on ordinary food. Now, such a breed might be injured, and not improved, by crossing, even with a race superior to itself in many properties. Thus, a cross with the Durhams or Herefords, would produce a race of larger size and superior fattening properties to the native race; but even in these properties, the progeny would be inferior to either the Herefords or the Durhams, and inferior to the Ayrshire itself, as a hardy race of dairy cattle. Thus the crossing of oxen with a race apparently superior, will not always be attended with ultimate good; and caution and knowledge of the end to be arrived at are required even in the cases where the good seems most easily attained.

Another error of a very different kind, but proceeding likewise from ignorance of the relative value of breeds, prevails to a great extent. Breeds, in themselves bad, are obstinately retained in districts fitted to support superior races. In every part of the kingdom, we see in existence wretched breeds, unworthy of being preserved, while the easiest means are at the command of the farmer of supplying their place by others suited to the locality.

Drawn by Mr. Nicholson R.S.A from a Painting by Mr Shiels R.S.A

Drawn on Stone & Printed by Fearlands

WEST HIGHLAND BREED.

Cow, bred by Mr Maxwell of Arofs. Mull: by a Dun Bull bred by Mr Maxwell: — Young Bull 18 Months old. Bred by Mr[illegible]

THE WEST HIGHLAND BREED.

PLATE III.

1. BULL, Four Years' Old, Bred by Colonel M'NIEL of Barra:
   By a Bull bred by Mr Stewart, Chesthill.
2. HEIFER, Bred by ALEXANDER CAMPBELL, Esq. of Caolis:
   By a Bull bred by Mr Campbell.

PLATE IV.

1. WEST HIGHLAND COW, Bred by Mr MAXWELL of Aross, Mull:
   By a Dun Bull bred by Mr Maxwell.
2. YOUNG BULL, Eighteen Months' Old, Bred by Mr CAMPBELL of Caolis:
   By a Black Bull bred by Mr Campbell.

The great Primary district of Scotland, usually termed the Highlands, has been occupied, beyond the records of history and tradition, by vast herds of oxen, which have acquired the characters suited to a country of heaths and high mountains. These oxen, although varying in size and aspect with the nature and altitude of the country, present, with few exceptions, such characters in common, as to entitle us to refer them to a common origin. In the Zetland and Orkney Islands, there has existed a peculiar race, of which notice will be afterwards taken; but in all the rest of the Highlands, properly so called, the herds of oxen, however distant in their habitat, constitute a group, connected by affinities which form a breed in the usual sense of the term. They are small in size; have horns in the male and female, turning more or less upwards at the points; have short muscular limbs, and are largely covered with hair. Their muzzle is usually black; they have dewlaps, and on the neck a ridge of coarser hair, forming a mane. Their colour is various, often black, sometimes brown, or a mixture of brown or black, and often mouse-dun. They are hardy beyond all the races of the cattle reared in the British Islands. Their size bears a constant relation to the supplies of natural food. In the Northern and Central Highlands, it often does not exceed that of the calves of a few months old of the larger breeds. Towards Argyleshire, on the south-west, including several of the Hebrides, where the production of the grasses and other herbaceous plants is more abundant, the size of the animals becomes in a corresponding degree enlarged. In like manner, towards the eastern coast, where the mountains gradually pass into the lower country, the cattle gradually assume a character approaching that of the larger breeds.

All analogy leads us to infer, that the Mountain Breeds of Scotland are identical with those which formerly inhabited the woods of that country, just as we have seen that, in Wales, the domesticated race is identical with that which we term Wild. The physical circumstances of Scotland, however, have vastly changed even within the historical era. Like Norway, and other countries of the north of Europe, it was once covered with great forests, nearly all of which have disappeared, leaving the country destitute of shelter, and covered with heaths and the plants peculiar to peat. Under such circumstances, we must expect a corresponding distinction between the ancient cattle of the forests, and those which have for ages inhabited, in a state of semi-domestication, the bleak mountains of the country.

The main difference consists in habits, the one class natural to a state of liberty, and the other of dependence; yet this difference disappears when the animals are placed under similar circumstances. The wild breed, we have seen, becomes domesticated with the utmost facility; and the tame breed, if left in a state of entire liberty, assumes the more striking habits of the wild,—the shyness, the swiftness, the concealment by the mothers of their young, and the like. In some of the few remaining pine forests of the north of Scotland, cows which are left to stray become as wild as deer, and are shot in the same manner. The white colour of the Urus in many cases returns, so that we have almost a complete restoration of the ancient characters of the race. Individual cattle are sometimes met with amongst the droves of the Northern Highlands, resembling, even to the marking of the ears, the wild cattle. In the Outer Hebrides, a whitish-dun colour is pretty generally seen, resembling the colour of the cattle at Hamilton Park; and what is remarkable, the inhabitants of the islands, in all their traditions or fables of what are termed *fairy-cattle*, ascribe this colour to the animals.*

The finest and largest of the native cattle of the Highlands are bred in Argyleshire and the neighbouring Islands. This character they owe to the greater development of their forms, to the superior herbage of the western coasts, but in a great degree

* Mr MACGILLIVRAY on the Outer Hebrides.

THE WEST HIGHLAND BREED.

likewise to the superior care bestowed in breeding. After the middle of last century, ARCHIBALD, DUKE of ARGYLE, a worthy and patriotic individual, bestowed considerable attention in improving the cattle of the district surrounding his own seat of Inverary; and more recently, numerous gentlemen of the Western Highlands have devoted the most sedulous attention to the improvement of this breed. On these accounts, the variety of the Western Highlands is usually referred to as the model of the breed, just as that of Pembroke is regarded as the model of the Mountain Breeds of Wales. But the West Highland Breed has extended to Perthshire and other parts; and in almost every part of the Highlands, are now to be found gentlemen devoting their attention to the improvement of this staple production of their country.

It is well known to all breeders, that a certain class of external characters indicates a disposition to arrive at an early maturity of bone and muscle, and to become easily fat. The most essential of these characters are, a large cylindrical body, dependent upon the greater curvature of the ribs, a body large with relation to the limbs, or, in other words, limbs short with relation to the body, a broad expanded chest, a skin soft to the touch and expansile, a relative smallness of the bones, and an absence of coarseness in the extremities. In certain breeds of the lower countries, these characters may be developed to a high degree; but in a country of mountains and heaths, with a cold, humid, ungenial climate, there must be combined with these a set of characters indicative of that hardiness of constitution, without which the animals would be unsuited to the condition in which they are placed. That extreme delicacy of form which can be easily communicated by breeding, must be avoided. The hair, while it is silky, unctuous, and free from harshness, should be abundant and curling; the neck should be strong and muscular; the forehead rather broad; and the nose, from the eyes to the muzzle, short; a dewlap should exist as a character of the breed; the eyes should be prominent and clear; the horns should be of good length, without approaching to the coarseness of the long-horns of the lower country, spreading, and tipped with black.

Now, in the genuine West Highlanders, we shall find such a combination of these characters, as to show them to be well fitted to the country in which they are reared. Their limbs are short, though muscular, their chests wide and deep, their ribs well arched, and their backs as straight as in any other breed. The neck, indeed, and dewlap, seem somewhat coarse in the bull, but these are characters indicative of their mountain state; and almost all their other points are what breeders would term good. They are of various colours. A disposition exists in the breeders of the Highlands to cultivate the black colour, as conceiving it to be more indicative of hardiness; and hence the greater number of the cattle of the Highlands are black. But the brown colour, or the mixed black and brown, or the mouse-dun, as shown in the Cow in the plate, are yet more indicative of a disposition to fatten. The brown is attended with that orange tone of the skin which is valued in other breeds, as the Pembroke and the Devon; and there is a constant tendency in the best bred cattle of the Highlands to assume it. The breeders, therefore, should look to the essential characters of form, without limiting themselves to a black colour of the hair, which is a property altogether secondary.

The Cows of this breed, like those of many alpine districts, are deficient in the power of yielding milk. The milk they give is rich in cream, but it is in small quantity; and they very quickly tend to run dry. They are usually allowed to suckle their own young, and often manifest the wildness of their race, by refusing to yield milk, and quickly running dry, unless their young be suffered to suck them.

Attempts have been sometimes made to cross this breed with the cattle of the lower country, with the Ayrshire, and even with the Short-horns. Fine animals are produced by first crosses of this kind; and many of the fat oxen sent to be exhibited at cattle shows are thus obtained. But the benefit may be said to end with the first cross. The future progeny is inferior to either of the parent races: to the larger cattle of the plains in their peculiar characters; and to the mountain breed in their adaptation to a steril country.

Every consideration founded on our knowledge of the character of the animals, and the nature of their country, indicates the propriety of maintaining the purity of the race of the Highlands, and calling forth its useful properties by careful breeding. Over all the Northern and Central Highlands, a vast scope for beneficial improvement is open; and no easier method of effecting it presents itself, than the obtaining of bulls from those districts where circumstances have enabled the breeders to bring them to the greatest perfection of form.

Drawn by Mr Nicholson R.S.A from a Painting by Mr Shiels R.S.A.

Drawn on Stone & Printed by Parkland

ZETLAND BREED.

Cow, 5 Years old, the property of Mr Andrew Duncan, of Coningsburgh.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published August, 1840 by Longman, Orme, Brown, Green, & Longmans, Paternoster Row, London

THE ZETLAND BREED.

PLATE V.

COW, Five Years' Old, the property of ANDREW DUNCAN, Esq. of Coningsburgh, Bred on the Island called the Mainland.

In the Zetland Islands, races of Cattle, Sheep, and Horses, have existed from time immemorial, distinct in their characters from those which are indigenous to the Northern Highlands, and other parts of Scotland. These remote islands, the Thule of the Roman writers, were early united to the kingdom of Norway, and, in the middle ages, were in the hands of those lawless rovers, whose piracies extended to the fairer portions of Europe. The Islands were at length transferred to the Crown of Scotland, and were for ages subjected to the servitude of the feudal system in its most cruel form. But the inhabitants, though mixed with their conquerors, remained essentially Norwegian; and, even until the last century, the Norse language continued to be that of the oppressed inhabitants. The domestic animals of the country were, in like manner, distinct from those of the Celtic inhabitants of the Main, and to this day present the traces of their Scandinavian descent.

The cattle are distinctly Norwegian in their characters, and a similar race extends to Iceland. They are small, but of very good form when pure, and fatten with great quickness when carried to superior pastures. Their horns are short, their skin is soft, and their flesh is equal to that of any cattle produced in the British Islands. They are of various colours, generally party-coloured, and tending more to the lighter shades than the cattle of the Highlands. The females receive the male at an earlier age than is known in the case of any other breed in this country. The heat occurs at the age of five or six months, and has been observed even at four months, indicating an early precocity of the animals, and a tendency to arrive soon at old age. The cows are tolerably good milkers, in which respect they agree with the cattle of Norway, and differ from those of the Highlands; and in this respect too, they agree with the cattle of Jersey and the islands of the Channel, which are likewise believed to be of Norwegian origin.

These cattle are smaller than those of Norway, which is to be ascribed partly to the absence of shelter, and partly to the want of artificial food. These islands, though exposed to perpetual storms from the tempestuous seas that surround them, have not so cold a climate as Norway; but they are totally destitute of the noble forests which, in the latter country, afford shelter from the icy blasts of winter, while the tillage of the country is every way inferior.

Norway is a country of independent proprietors, maintained, by their laws of equal succession, in a happy mediocrity of condition, cultivating their paternal fields, and reaping the direct reward of their individual industry. In the islands of Zetland, the cultivators of the soil are mostly miserable tenants, who labour for others, and have neither the means nor the will to call forth the resources of their country. Hence it is, that, while the rude industry of the Norwegians suffices to supply their domestic animals with such food as the country affords, the cattle of the Zetland Islands are left almost in a state of nature, without sufficient sustenance in winter, and with scarce any other shelter than the desolate rocks of the country supply. Thus they remain without that development of form which sufficient food and careful treatment never fail to produce. Like the Sheep of the same country, they eat the fuci and other algæ of the coasts, and wait the ebbing of the tide that they may procure this species of food.

The cattle of Zetland have necessarily become much mixed with those of Orkney, and the latter again with the breeds of the Northern Highlands. These mixed races are rarely equal to those of pure descent. The crossing, too, has never been pursued on fixed principles, and hence the modern cattle of Zetland are far inferior to what they might have been rendered by cultivating with care the parent stock. But, above all things, the starving of the animals while young has contributed to render them puny and degenerate, as compared with the ancient Scandinavian stock. It is pleasing, however, to record, that the seeds of improvement are scattered in these islands, and that the attention of intelligent gentlemen is now directed to the improvement of the country, aided by the increased intercourse which steam navigation has opened up with the markets of the south. This latter circumstance may be expected to increase the profits of the producers of cattle, and enable them gradually to extend their supplies of artificial food.

A question of economical importance is, the manner in which the existing race of Zetland cattle can be improved. The first means certainly are a better system of feeding and general treatment applied to the animals when young. The next mode is the introduction of suitable males for breeding. These might be obtained from the West Highlands, but the end would pro-

bably be still more effectually attained by resorting to Norway, where excellent bulls of the parent stock can be obtained with facility.

It is remarkable that the little cattle of these islands form admirable first crosses with superior breeds, as the Short-horns; but this system of crossing, though it may be more profitable to individual breeders, can do nothing for the general improvement of the stock of the country itself. The animals reared must be of a kind suited to the conditions in which they are placed. They must be small, hardy, and adapted to the state of agriculture which circumstances allow to be pursued.

The same general remarks will apply to the cattle of the Orkney Islands. These likewise present the traces of their Scandinavian descent, but they are greatly more mixed with the races of the Main. In particular, many bulls of coarse form have been introduced from Caithness, itself possessing a mixed breed, and thus herds without definite characters are every where produced.

In every considerable tract of country, it may be observed, many advantages result from possessing a well defined breed. In this case, the breeder has merely to select for propagation the best animals of the race. He has the assurance that the progeny will possess the general characters which he wishes to communicate. But when there is no distinct breed in the ordinary sense of the term, his expectations will be continually subject to disappointment, by the progeny presenting characters different from those of the parents. An effect of the same kind is seen every day in the case of Dogs. If we breed solely from Greyhounds, Terriers, or Sheep-dogs, we calculate securely on obtaining those varieties respectively with more or less of the virtues of the parents; but if we produce a mixed race, we can predicate nothing certainly regarding the form and qualities of the mongrel progeny.

Drawn by Mr. Nicholson, R.S.A. from a Painting by Mr. Shiels, R.S.A.

Drawn on Stone & Printed by Fairland

KERRY BREED.

Cow, 6 Years old, the property of the Right Honourable the Earl of Clare from a stock selected by the late Bishop of Killaloe.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published August 1840, by Longman, Orme, Brown, Green, & Longmans, Paternoster Row, London

THE KERRY BREED.

PLATE VI.

1. COW, Six Years' Old, the property of the Right Honourable the EARL of CLARE, from a Stock selected by the late BISHOP of KILLALOE.

2. BULL, Five Years' Old, the property of HUGH PALLISER HICKMAN, Esq. of Fenlowe, in the County of Clare, selected from the mountain tract of the North of Kerry.

The native breeds of Irish cattle may be divided into those of the mountains, moors, and bogs, and those of the richer plains, with intermixed breeds resulting from the union of different races, foreign or native. The mountain breeds approach to the characters of the ancient White Forest Breed in a sufficiently near degree to indicate a common descent with the cattle of the mountains of Scotland and Wales and the high lands of Devon.

Of the native breeds of Ireland, one very peculiar and well defined is derived from the mountainous county of Kerry, the most westerly land in Europe, and remarkable for the humidity of its climate. The Kerry cattle of the mountains are generally black, with a white ridge along the spine, a character agreeing with the account which older writers have given of the Uri of the woods of Poland. They have often also a white streak upon the belly, but they are of various colours, as black, brown, and mixed black and white, or black and brown. Their horns are fine, long, and turned upward at the points. Their skins are soft and unctuous, and of a fine orange tone, which is visible about the eyes, the ears, and the muzzle. Their eyes are lively and bright, and although their size is diminutive, their shape is good.

These cattle are hardy, and capable of subsisting on scanty fare. Although stunted in size when brought from the bogs and steril pastures on which they are reared, they make a wonderful advance in size, even though several years old, when supplied with suitable food. The fat of their beef is well mixed with the muscular parts, or, in technical language, marbled; and they fatten well in the inside, a character which renders them valuable to the butcher, and distinguishes them in a remarkable degree from the Long-horned Breeds of the lower country.

But the peculiar value of the Kerry Breed is the adaptation of the females to the purposes of the domestic dairy. In milking properties the Kerry Cow, taking size into account, is equal or superior to any in the British Islands. It is the large quantity of milk yielded by an animal so small which renders the Kerry Cow so generally valued by the cottagers and smaller tenants of Ireland. She is frequently termed the Poor Man's Cow, and she merits this appellation by her capacity of subsisting on such fare as he has the means to supply.

This fine little breed has been greatly neglected. Scarce any means have been used to produce a progressive development of form, by supplying proper nourishment to the breeding parents and the young, and no general care has been bestowed on preserving the purity of the stock. In almost every part of Ireland the breed has been crossed with the Long-horns, and a great proportion of the Cows of the country known under the name of Kerries are the result of crosses of this kind, and so have deviated in a greater or less degree from the native type, and almost always for the worse.

A few honourable exceptions, however, exist to this too general neglect of the mountain dairy breed of Ireland. One attempt had succeeded to such a degree as to form a new breed, which partially exists with the characters communicated to it. It has been termed the Dexter Breed. It was formed by the late Mr DEXTER, agent to MAUDE LORD HAWWARDEN. This gentleman is said to have produced his curious breed by selection from the best of the mountain cattle of the district. He communicated to it a remarkable roundness of form and shortness of legs. The steps, however, by which this improvement was effected, have not been sufficiently recorded, and some doubt may exist whether the original was the pure Kerry, or some other breed proper to the central parts of Ireland now unknown, or whether some foreign blood, as the Dutch, was not mixed with the native race. One character of the Dexter Breed is frequently observed in certain cattle of Ireland, namely, short legs, and a small space from the knee and hock to the hoofs. This has probably given rise to a saying sometimes heard, of "Tipperary beef down to the heels." However the Dexter Breed has been formed, it still retains its name, and the roundness and depth of carcass which distinguished it. When any individual of a Kerry drove appears remarkably round and short legged, it is common for the country people to call it

THE KERRY BREED.

a Dexter. Amongst the successful cultivators of the dairy breed of Ireland ought to be mentioned the late Bishop of Killaloe. He sedulously endeavoured to preserve and improve a breed which he conceived to be so useful to the peasantry of Ireland; but his example has scarcely spread amongst other breeders of the country.

The Kerry Cows afford admirable first crosses with the Short-horns, Herefords, and other larger breeds. Of these crosses, that with the Short-horns is the most general, and appears to be the best. The crosses are found well adapted to fattening, as well as to the dairy, and the profit from this system is so immediate that it is to be believed that it will be more largely resorted to than a progressive improvement of the parent stock.

Nevertheless the cultivation of the pure dairy breed of the Kerry mountains ought not to be neglected by individuals or public associations. The breed is yet the best that is reared over a large extent of country, from its adaptation to the existing state of agriculture, and to the humid mountains and bogs in which it is naturalized. Were it to be reared with care in a good district, the form would be gradually more developed, and the Kerry breed might then bear the same relation to the mountain breeds of Ireland, which the Castle Martin does to those of Wales, or the West Highland to those of the north of Scotland. The figure in the Plate will show a considerable resemblance between the Kerries and North Devons; but the two breeds are very different in size and form. They are distinguished also by the adaptation of the Kerry Breed to the dairy, for which the other is imperfectly suited. A painting of a Bull of the Dexter variety of the Kerry breed is in the College Agricultural Museum, which may be regarded in most of its points as a model of form.

Drawn by Mr Nicholson, R.S.A. from a Painting by Mr Shiels, R.S.A.

Drawn on Stone & Printed by Fairland.

POLLED ANGUS BREED.

Bull, 4 Years old, bred by Mr Hugh Watson, Keillor.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published August, 1840, by Longman, Orme, Brown, Green, & Longmans, Paternoster Row, London

PREFACE.

From early times, Great Britain has been distinguished for the numbers and excellence of its Domestic Animals. The cultivation of the Horse began in the earlier periods of our history, for the purposes of war and the tournament, and has subsequently been carried to the highest perfection, for the race-course, the chase, the saddle, and for draught. The cultivation of Sheep was early the subject of public attention, and was favoured by numerous laws, as being connected with the woollen manufactures of the country; and at a period comparatively recent, extraordinary attention has been devoted to the means of cultivating animals for human food. It is during this latter era, which began about the middle of last century, that the greatest additions have been made to the value of the Live-stock of this country, and that the practice of breeding has been reduced to a system, and founded upon principles.

Of the species of the Domestic Animals naturalized in the British Islands, numerous varieties present themselves, to which we apply the term Breeds. The characters of species may have been imprinted by original organization, or may have been the result of laws of organic development, of whose nature and operation we are ignorant. The characters which distinguish varieties are those which may be reasonably ascribed to the agency of known causes, as of climate, and the supplies of food. The differences of character, indeed, produced by agencies of this kind, may be very great, and, in the case of many animals, may leave the naturalist in doubt, whether the differences observed are the result of original organization, or of more recent changes. This doubt, however, will scarcely arise in the case of the larger Domestic Quadrupeds of this country,—the Horse, the Ox, the Sheep, and the Hog: and we may safely assume, that the differences which we observe in them are the result of the different conditions as to food, temperature, and other external agents, to which they have been subjected. To the natural causes which produce diversities in the size, form, and other characters of our domestic animals, we must add those produced by art. By breeding from animals of certain characters, we can communicate the distinctive properties of the parents to the progeny, and thus multiply in a great degree the varieties to which we apply the term Breeds.

In the rural economy of this country, a high degree of importance is to be ascribed to a knowledge of the distinctive characters of Breeds or Races. Much of the profit of breeders depends upon adapting the breed of any animal to the circumstances in which it is to be placed. By rearing, for example, a breed of large and delicate oxen, in a country unsuited, from its natural or artificial productions, to maintain them, we incur the hazard of loss in

THE POLLED ANGUS BREED.

PLATE VII.

BULL, Four Years' Old, bred by HUGH WATSON, Esq. Keillor.

The country from which this breed of cattle is derived is the tract of old red sandstone which forms the plains and less elevated parts of the counties of Forfar and Kincardine. This tract of country is of varying fertility, has long been enclosed, and is now extensively applied to a mixed system of tillage and grazing, and in a peculiar degree to the production of turnips. The breed of cattle is to be regarded as one of those races which are intermediate between the races of the mountains and those of the richer plains. The older breed of the district was horned, but with a tendency, it may be believed, to assume the hornless character. But, however this be, the hornless variety ultimately became the predominant one, and is now to be regarded as the cultivated breed of the district. The animals are termed by the country people dodded, and sometimes humbled cattle. Attention seems to have been especially devoted to them as a separate variety soon after the American war, when the agriculture of this part of Scotland began a course of rapid improvement. During the war with France the cultivation and improvement of them continually extended, and numbers of them were driven to the English markets under the name of Galloways, which they resembled in their aspect and general character. There has been ever since a large exportation of them to Yorkshire, Norfolk, Leicester, and other grazing counties, where they are fattened for a longer or shorter time according to their condition. They find their way in numbers to Smithfield, and form a part of the consumption of the capital.

This breed has a certain resemblance to the Galloway, and a mixture of blood seems to have taken place between them; but the cattle are less compact in form and longer in their limbs than the true Galloways, and have not the depth of rib so characteristic of the latter breed. But the Angus, living in a less humid climate, being subjected to more artificial treatment, and being less exposed accordingly to the inclemency of the weather, have a finer though not a softer skin, and a less rough coat of hair, than the Galloway. They are better treated when calves, and during the whole period of their growth; and though less uniform and confirmed in their characters than the Galloways, owe more to art and careful culture. Finer animals have been produced, by the care of distinguished breeders, in Forfarshire than in Galloway, though those of the latter district have the advantage derived from a country of milder temperature and more productive of the natural grasses. The Angus are better milkers than the Galloway, though the dairy does not form an object of especial attention in the district.

The Angus are of different colours, but are mostly black, with white marks. Many of them are brindled, as it is termed, or a mixture of black and brown with different shades. The Angus breeders prefer the black, without confining themselves with the same rigidity as the breeders of Galloway to that colour. The breeders of both districts would do well to disregard this secondary character of colour, and look solely to the form and superior fattening powers of the individuals.

The Angus breed has recently been much extended in the north of Scotland, and is justly gaining preponderance over the native cattle of some of the districts adjoining. The country which it inhabits, from its excellent state of cultivation, is suited to maintain any race of cattle, and the Short-horned breed has accordingly been introduced, and may be expected to gain on the native race. The interests of breeders themselves will determine in the several cases that may arise when the preference should be given to the native and when to the imported breed.

An error regarding the relative value of different breeds of cattle may be here noticed. Over a great part of this country the fattening of cattle is not the purpose of the breeder. He rears the cattle to the age which consists with the nature of his farm, and then disposes of them to another class of traders, who fit them for ultimate consumption. Vast numbers of cattle are reared in the mountainous and less fertile districts and farms, and then transferred to the lower country and richer farms to be fattened for use. This species of transfer is continually going on, and constitutes a great part of the trade in cattle in the British islands; and much of the profit of graziers and others depends on the skill with which, on the one hand, the purchases are made, and, on the other, on the manner in which the processes of grazing and fattening are carried on. The person who purchases lean stock for fattening may often be better paid by the smaller cattle than by the larger and finer; that is, he may receive a larger return from the capital laid out. But it were an error on this account to say that the one breed is equal to or superior to the other. The value of a breed is not determined by the profit which persons may obtain by purchasing, but by the nett produce derived from the animals from the period of birth to that of maturity. An Ox that, at the age of two years' old, can be fattened to the weight of

sixty stones and upwards, like those of the Short-horned breed, is regarded as a more valuable animal than one that would require three or more years to be fattened to the same weight. The Angus is a good breed, well adapted to the natural and acquired fertility of a great tract of country; but it cannot be brought to the same weight of muscle and fat, and in the same period of time, as the Short-horns and Herefords. The latter, therefore, form the more valuable breeds, in the sense in which the term value is here employed. In like manner, the Short-horned and Herefords are said to be superior in value as breeds to the West Highland, though the latter is immeasurably superior to the others in adaptation to the countries in which it is naturalized, and may be equally a subject of profitable trade to the grazier and feeder. When we employ the term valuable, then, in the abstract, with relation to a breed, it must be understood as denoting the quality of reaching to the greatest weight of muscle and fat in the shortest time, and with the least consumption of food, and not the adaptation of the race to peculiar localities, or the profit that may be derived between the periods of buying and selling. These considerations kept in mind may prevent some of those disputes which sometimes arise between persons contending for the relative superiority of their respective breeds of animals.

Sometimes the Angus breed has been crossed with the Short-horned, and in this way very fine animals, superior to the native race, have been produced: but the benefit ends in a great degree with the first cross; the subsequent progeny is inferior to the pure Short-horns in size and tendency to fatten, and to the indigenous stock in hardiness and adaptation to rough treatment. The better course, therefore, to pursue is to preserve the two breeds distinct and pure. Where the condition of farms, or the wishes of breeders, induce the adoption of the Short-horned breed, this ought to be cultivated in its state of purity; where other circumstances exist, the native breed should be preserved unmixed, care being used to call forth its useful properties by proper feeding and due attention to the selection of the breeding parents.

The figure in the Plate will show the perfection to which this breed of cattle is capable of being brought. It is taken from the stock of one of the most distinguished cultivators of the Angus breed, Mr WATSON of Keillor.

CALLOWAY BREED.

Heifer 3 Years old, the property of the Right Honourable the Countess of Selkirk.—Bull 4 Years old, bred by Mr Marshall, St Mary's Isle, Kircudbrightshire.

THE GALLOWAY BREED.

PLATE VIII.

1. HEIFER, Three Years' Old, the property of the Right Honourable the COUNTESS of SELKIRK, St Mary's Isle, Kirkcudbrightshire.

2. BULL, Four Years' Old, Bred by Mr MARSHALL, St Mary's Isle.

The district termed Galloway forms the termination on the west of the range of the greywacke hills, which stretch from St Abb's Head on the east coast to the North Irish Channel. It comprehends the modern counties of Wigton and Kirkcudbright, but formerly included, and still does so in popular language, a portion of the shires of Ayr and Dumfries. The general character of the district is moist. The winters are more temperate than on the eastern coasts, snow does not remain long upon the ground, and the soil tends to produce the grasses, rushes, and other herbaceous plants, rather than the heaths. This district has long produced great numbers of cattle, which have acquired a distinct class of characters.

The breed of Galloway is properly one of the mountains rather than of our lower country, and its characters adapt it well to the degree of productiveness of the district, the nature of its agriculture, and the humidity of the climate. The cattle are of larger size than those of the Highlands of Scotland, but smaller than the Long-horns and the breeds of the lower country. Their average dead weight, when fat, at three years' old, may be reckoned about 45 stones, of 14 lb. to the stone; those sold in London at the age of nearly four, weigh from 55 to 60 stones. The skins are thick, though soft to the touch, and the hair is long and soft. The predominant colour is black, the breeders preferring that colour, and regarding it as indicative of hardiness and purity of blood. The form of the body of these cattle is compact, the limbs are short and fleshy to the knee and hock, the chest is moderately deep, the throat is furnished with a dewlap, and the neck is somewhat coarse. The sides are very long, and this character distinguishes the breed. The Galloway rib is well known in Smithfield, and the general form of the animal is valued by the butchers. These cattle are hardy, exceedingly docile, sufficiently good feeders when carried to suitable pastures, and weigh well in proportion to their bulk; they produce beef which is esteemed in the English markets, on account of the fat being well mixed with the muscular parts. HECTOR BOECE, who wrote in the 16th century, speaking of the cattle of Galloway, says, "In this region ar mony fair ky and oxin, of quhilk the flesh is right delicius and tender."

The cows are indifferent milkers, and soon run dry. In this character they resemble other mountain breeds of Scotland. The character may be partly the result of breeding, the care of the breeders of the district having been always directed to the grazing and not to the milking properties. But the milk, though comparatively small in quantity, is rich in cream.

A remarkable character of this breed is the absence of horns in the male and female. It is said that the older breed of Galloway, as they existed in the middle of last century, possessed horns; but this is not perfectly ascertained, and some earlier notices rather conduct us to the conclusion, that the absence of horns has been for a much longer period a distinctive character of the race. It may be either due to the physical circumstances of the country producing this constitutional character, or to the effects of selection in breeding, or to a combination of these causes. If the constitutional tendency existed, it was easy for breeders, by breeding only from animals destitute of horns, to render all the breed polled. Sometimes even yet the horns are developed in individuals, and, as this is regarded, erroneously indeed, as a test of impurity, they are cut out. In a few cases the development of the horns is partial; the nucleus or bony part is wanting, but the horny part has been formed, and hangs loose on the skin.

The trade in cattle between Galloway and England appears to have begun soon after the union of the two Crowns, and for upwards of 150 years has been regular and extensive. It is computed that upwards of 20,000 head are annually exported from the district, of which from 16,000 to 18,000 are sold at Smithfield; but it is probable that the total export exceeds the quantity mentioned. They are reared to the age of two or three years on the farms of the country, and are driven southward mostly in the latter part of the season, and chiefly to the counties of Norfolk and Suffolk. They are purchased by the English feeders, wintered on straw, hay, and green food, and fattened on the grass of the following season, and driven to Smithfield, supplying a large part of the consumption of the city from Christmas to July. They are well known accordingly in this great market, and are greatly valued by butchers and consumers. A number are likewise fattened in the lower parts of Dumfriesshire, and indeed, over a great part of this extensive county, the prevailing breed has hitherto been the Galloway. But for many years the Ayrshire breed has been gaining ground with the progress of the dairy, and in some cases the Short-horns have been introduced.

THE GALLOWAY BREED.

In Galloway proper, the management of the cattle when young is rude, but suited to the character of the district. The calves are generally permitted to suck the dams, are fed on the coarse herbage of the country, left a great part of the winter in the fields, or kept on straw or coarse hay. The production of corn in the district is limited, and is regarded as subordinate to the purpose of producing straw for the stock. The habit of trading in cattle was very general amongst the farmers of Galloway, and gave rise to a spirit of speculation which was somewhat unfavourable to the pursuit of regular agriculture. The farmers are still in the practice of attending markets, and making purchases and sales of cattle, with the view of a profit on the transfers. The great trade, however, is in the hands of the Norfolk and Suffolk drovers, who used to settle with the owners by bills, which was attended with hazard to the sellers, and was sometimes productive of great losses to the district. The practice of spaying the heifers prevails to a greater extent in Galloway than in any part of the kingdom. The operation used to be performed at the age of twelve months, but is now very generally done at two months. The greater part of those that are not retained for breeding are thus treated. Those heifers do not quite attain the size of oxen, but they are regarded as better suited for fattening, and their beef is reckoned more delicate, and brings accordingly a somewhat higher price. The practice, however, though it may be justified on these grounds, is unfavourable to the improvement of the breed, by limiting the selection of females.

Extensive as has been the trade in this staple production of the country, it was long before any thing like attention to the principles of breeding was given by the farmers. Notwithstanding the spirited efforts of individuals, the stock of the country was treated with much neglect with relation to the preserving and improving of the breed. The bulls were almost always defective in essential points, and an injurious mixture had progressively taken place with cattle from Ireland, 10,000 and more of which are supposed to pass every year through the country by way of Donaghadee and Port-Patrick. Efforts have, from time to time, been made to cross the breed by the Dishley Long-horns, the Ayrshire and modern Short-horns. These attempts, it is believed, have been all failures, in so far as they were designed to improve the general breed of the country; and modern breeders, with better knowledge, have turned their attention to the improvement of the existing race. In this field there is a wide scope for the exertion of individuals, and, if steadily pursued, the system cannot but be attended with beneficial results. The breed of Galloway is peculiarly confirmed in its characters, and thoroughly adapted to the condition of the country, and all that is wanted to promote its progressive amelioration, is a careful selection of suitable males and females for breeding, with that due attention to early and liberal feeding of the young stock which in every case tends to the production of superior animals. If, on any particular farm, another race of cattle can be reared, as the Short-horns, let this stock be substituted; but it would be a retrogradation in improvement, to attempt a mixture of blood with the race so long acclimated, and so excellent in itself as that of Galloway. The great advantage of having a breed possessing a uniformity of characters is manifest in Galloway, as in every country where a fixed race with determined characters exists. The breeder has always, in such a case, as was before observed, the assurance of being able to reproduce in the offspring the character of the parents; whereas, in countries where no uniform breed has been established, he never can be so assured of the result of coupling animals together. The cattle of Galloway, though they have all the characters of resemblance which constitute a breed, yet vary greatly in size and form, according to the fertility, natural or acquired, of the farms on which they are reared, showing the importance of providing an increase of food for the animals when growing in bone and muscle. One of the great defects at the present time over a large part of Galloway, is the not supplying the growing stock with sufficient food.

The beautiful Heifer represented in the Plate exhibits the pure Galloway deprived, by care in breeding, of that coarseness of neck which is generally characteristic of the race. The district around Kirkcudbright is agreed to be that from which the finest of this breed have been derived; and amongst the most eminent improvers of it is to be mentioned the late Mr WILLIAM MURE.

Drawn by Mr Nicholson, R.S.A. from a Painting by Mr Shiels R.S.A.

Drawn on Stone & Printed by Fairland, 45, St John's Square.

THE POLLED SUFFOLK BREED.

Cow. 6 Years old, bred by Mr Richard England, Bixham Abbey; from the stock of Mr Reeve, Weighton, Norfolk.

PROFESSOR LOW'S ILLUSTRATIONS OF THE BREEDS OF THE DOMESTIC ANIMALS.

Published April, 1841, by Longman, Orme, Brown, Green & Longmans, Paternoster Row, London

POLLED SUFFOLK BREED.

PLATE IX.

COW, Six Years Old, Bred by RICHARD ENGLAND, Esq., Binham Abbey, Norfolk, from the Stock of Mr REEVE, Weighton, Norfolk.

The Polled Suffolk Breed is usually termed the Suffolk Dun, from the county of Suffolk, where it is found in the greatest numbers, and from the mouse-dun colour which was once the prevailing one of the breed. Although termed Suffolk, the breed extends over Norfolk, Cambridge, and a part of Essex, where it either remains pure, or has been mixed in blood with other races. In Smithfield the fattened cattle, whether of pure or mixed lineage, receive the name of Home-breds.

The Polled Suffolk cattle are, as the name denotes, destitute of horns. They are mostly of small size, and of defective form when we regard them as animals to be fattened. The characteristic colour of the older breed was a mouse-dun, or some shade approaching to that colour; but now they are generally reddish-brown, or brown mixed with white. The general form of the unmixed race is uncouth; the head is heavy and the extremities are coarse. The belly is large and the back narrow, which gave occasion to BAKEWELL to observe of them, that they were too like a penthouse-top, and would do very well if turned upside down. The cows have the udders very large, with the subcutaneous abdominal vein prominent, a character which always indicates the power of the female to yield much milk. Nearly a century ago the cows were described as having "the carcasses large, the belly heavy, the back-bone ridged, the chine thin and hollow, and the loin narrow." With the exception of the narrowness of the loin, this description applies truly to such of the descendants of the older breed as remain unmixed. They are found in the greatest purity and numbers in the middle division of the county of Suffolk, where numerous dairies are established. This may be regarded as the central habitation of the breed, its characters changing as we recede from this district. About Ipswich and southward to the coast the animals are larger and of coarser bone, retaining, however, the conformation and colour distinctive of the breed. In Cambridge and Essex they exhibit a greater or smaller degree of departure from the parent type. In Norfolk they are mixed in blood with an older race, distinguished by small upright horns, which has now disappeared either by the substitution of the pure Suffok, or by the effects of crossing.

The breed was probably formed at an early period, its peculiarities having arisen from the attention of breeders being mainly directed to the fitness of the animals for the dairy. CAMDEN thus describes the county of Suffolk between two and three centuries ago: "A large country it is, and full of havens, of a fat and fertile soil (unlesse it be eastward), being compounded (as it is) of clay and marle; by meanes whereof, there are in every place most rich and goodly corne fields, with pastures as battable for grazing and feeding of cattell. And great store of cheeses are there made, which to the great commodity of the inhabitants are vented into all parts of England; nay into Germanie, France, and Spaine also, as PANTALEON the Phisitian writeth, who stucke not to compare these of ours for colour and tast both, with those of Placentia." * And SPEED, who wrote in 1676, thus speaks of the productions of the same part of England: "The commodities of this shire are many and great, whereof the chiefest consist in corn cattle, cloth, pasturage, woods, sea-fish and fowle; and as ABBO FLORICENSIS hath depainted, This country is of green and passing fresh hue, pleasantly replenished with orchards, gardens, and groves: Thus he described it above six hundred years since, and now we find as he hath said; to which we may add their gain from the pail." † These notices suffice to show that it is long since a breed of cattle suited to the uses of the dairy had been established in the county of Suffolk. Some, judging from the absence of horns, and the size and general aspect of the animals, have imagined that the Polled Suffolk is a variety of the Galloway breed of Scotland, introduced into this part of England by the long intercourse between the Scotch breeders and the Suffolk and Norfolk graziers. The Polled Suffolk, however, has as much the characteristics of a distinct native breed as the Galloway itself. The individuals differ from the Galloways in the colour of the skin and hair, in the muscular development of the neck and shoulders, which are naturally large in the Galloway but thin in the Polled Suffolk, in the smaller depth of the ribs, and in the superior milking properties in the females.

The Polled Suffolk breed is regarded as hardy to the degree of bearing careless treatment and subsisting on indifferent food, and the cows are noted, as in former times, for the large quantity of milk which they yield, in proportion to their size and the food consumed. It is this property which gives its real value to the breed, which otherwise could not have maintained

---

* CAMDEN's Britannia, translated newly into English by Philemon Holland, Doctour in Physick—1610.

† SPEED's Theatre of the Empire of Great Britaine.

itself in a fertile district, amidst all the improvement which the cattle of the country have undergone. Suffolk is still distinguished as a dairy district. The principal manufacture is butter, which finds a sale in London, and other markets. It also produces great quantities of skimmed-milk cheese; which has given rise to the saying, that Suffolk produces the best butter and the worst cheese in England. From this kind of cheese being well suited to withstand the heat of warm countries, it was formerly largely employed in victualling the Navy. In consequence of the early attention paid to the produce of the dairy, it is easy to see that cows the best suited for that purpose would be sought for in preference to those possessing the property of early fattening. The dairy farmers hold it sufficient to obtain a good milking Cow, and, accordingly, the only principle of choosing bulls is that of selecting those which possess the reputation of breeding a good dairy stock. This system being pursued for a long period, the result has been what our knowledge of the principles of breeding would lead us to expect. The characters which indicate a disposition to arrive at early maturity and secrete fat, have been disregarded; while those that indicate a disposition in the female to produce abundant milk, have been alone valued. It is remarked by ARTHUR YOUNG, that the Suffolk breed has been preserved by a kind of accident. This observation cannot be admitted to be just. The Suffolk breeders, indeed, may not have been guided by very fixed principles in the choice of animals, but they have followed a certain rude experience, which has led them to select such as were suited to their uses; and they have acquired accordingly a race of animals admirably adapted to a particular end, however defective they may be in those other properties which have long been desired by the breeders of the country. The Cows of Suffolk, though subjected to careless treatment, and supported on the most common kinds of food, are scarcely surpassed by any other in their power of yielding abundant milk.

It is a question of economical interest for an extensive, rich, and populous part of the country, whether the breed thus formed during so many ages should be preserved and improved on the present basis, or whether it should be abandoned for some other possessed of different properties? Were the produce of the dairy the sole end of farming in Suffolk, then, perhaps, no better course could be followed than to preserve the breed as it exists, confining attention to the removing of its more obvious defects. But Suffolk is not merely a dairy county, but, like every other in England, employs a large capital in grazing for the butcher; and therefore it does not seem necessary or expedient to confine attention exclusively to a race of ill-formed animals, merely because they possess one property in perfection. This district is capable of rearing any of the superior breeds of the island, and others, therefore, might be produced in it, combining a greater number of useful qualities than the native race. But, looking to the actual state of Suffolk as a district in which the husbandry of the dairy is extensively established and successfully pursued, it is rather to be regretted that a race of cattle so well suited to the uses required should have been so much neglected; for it is to be observed, that the forming of a good dairy breed is greatly more difficult than the procuring of one adapted to the purposes of the grazier. But the breed has been long decreasing in numbers and purity, and it is probable that it will ultimately be merged in races which are made to cross it. The Ayrshire has been introduced to a great extent into the district; but though the Ayrshire is certainly a superior race to the Suffolk for a combination of useful qualities, it is greatly to be doubted if it is equal to it in the power of yielding a large quantity of milk on indifferent food.

Attempts have been made to improve the Polled Suffolk breed, for the purpose of rendering it suitable to the grazier as well as to the dairy. Mr REEVE of Weighton, near Wells, began a system of improvement of this kind nearly fifty years ago. He adopted the practice of careful selection, confining himself, however, to a particular colour, which, in compliance with the popular opinion, was red, in place of the dun more characteristic of the race. The stock acquired the conformation which he aimed at, and the property of arriving at more early maturity. His son-in-law, Mr ENGLAND, preserved until a recent period the same stock, and carefully cultivated the properties which it had acquired. The figure of the Cow given in the plate is of this variety. She will be seen to possess a form which would be esteemed good in any breed. She is represented just as she appeared in the straw-yard; and a Bull, fed likewise on common food, exhibited a form as good as the race was capable of acquiring, consistently with the preservation of its proper characters. Notwithstanding of the perfection to which Mr REEVE's stock had been brought during a lifetime of attention, Mr ENGLAND found it for his interest to abandon it, and adopt the Short-horned, as being more profitable. This and other experiments lead to the conclusion, that, though the old Polled Suffolk is admirably adapted to the dairy, it does not form a good basis for a breed suited to the mixed purposes of the dairyman and the grazier.

Drawn by Mr Nicholson, R.S.A. from a Painting by Mr Slaels, R.S.A.

Drawn on Stone & Printed by Fairland, 45, St Johns Sq.

THE DEVON BREED.

Bull, aged 2 Years and 9 Months, bred by Mr Denny, Egmoor, County of Norfolk.

THE DEVON BREED.

PLATE X.

BULL, aged Two Years and Nine Months, bred by JAMES DENNY, Esq., Egmoor, County of Norfolk.

On the southern side of the Bristol Channel extends the country of the ancient Damnonii, comprehending the present counties of Devon and Cornwall. Much of this tract resembles Wales in its aspect and geological characters; and like Wales it afforded in a former age a refuge amongst its mountains, rocks and fastnesses for the Celtic Britons. In this country we find the remains of the same older breeds of cattle which yet exist in the Welsh mountains, modified by the effects of a lower altitude and more temperate climate. In the county of Cornwall to the westward, the old breeds of cattle resembled those yet existing in the mountains of Wales, although they have been long so mixed with other races and with one another, that it is difficult to assign to them any distinctive characters. But farther to the eastward, and occupying the high lands of Devonshire on the Bristol Channel, is a peculiar variety of cattle, distinguished by such a common resemblance of properties and form as to render it one of the best-defined breeds of the British islands. It is usually termed the Devon breed, and sometimes the North Devon, from its being found in the greatest purity in the northern division of the county. These cattle have been extended very widely, but their peculiar district is the northern slope of Devonshire, extending from Barnstaple eastward beyond the river Exe.

The true North Devons are to be classed with the breeds of the higher country. They exceed a little in weight the heather and more muscular Pembroke and West Highland cattle; but they fall short of the Long-horned, Hereford, and other varieties of the lower plains. Their general form is light and graceful; their skin is of an orange-yellow colour; and they are distinguished by having the hair of a bright red, and by their eyes being surrounded by a ring of the colour of the skin. The nose is likewise of the same colour, and the inside of the ears is orange-red. Their horns are of medium length, very fine, and bending upwards in the manner of the Wild cattle of the parks. Their skin is generous and soft to the touch, and the hair is fine and tending to curl, like that of other cattle inhabiting a humid climate. The neck is long and the chest with little dewlap. The shoulders are oblique, the bones of the extremities are small, the limbs are slender and long, the chest is only of moderate width, the back is long, and the distance large between the last external rib and the pelvis. These are the most marked characteristics of the true Devons, taking as the type of the breed the variety proper to the elevated districts of North Devon. As we recede from this centre the size and form of the animals deviate more or less from the pure type. In the countries of richer herbage they become enlarged in size, and lose somewhat of the delicacy of shape which they exhibit in their native pastures. They appear to be of that variety of the ancient cattle which were valued for their white colour and the peculiarity of their red ears.

The females of this race are small as compared with the bulls and oxen, deficient in the power of yielding milk, and tending to run soon dry. Nevertheless the milk is very rich in cream, and of a fine yellow colour, on which accounts many prefer the Devons for the domestic dairy to other races whose milk is more abundant. The flesh of the cattle is juicy and tender, and tolerably well mixed with the muscular parts. The fat has a peculiarly yellow tinge corresponding with the colour of the integuments; but this is not regarded as an imperfection in those markets where the principal beef is the Devon, and where the eye is reconciled to this peculiarity in the colour of the fatty tissue.

The Devon cattle are gentle, agile, and above all our races adapted to active labour. Their shoulders have that obliquity which enables them to lift freely their fore extremities; and their quarters behind are relatively long, which is a character connected in the Ox as in the horse with the power of active motion. Their bodies too are light, and their limbs long, muscular to the hock and knee, and below those joints sinewy. These cattle, then, although wanting in the power of heavy draught which the larger Oxen can exert, have the faculty of muscular exertion in a higher degree. They trot well in harness, and will keep pace with a horse in the ordinary labours of the farm. They are largely employed throughout the county of Devon for the purposes of labour, usually four together, and mostly attached by the yoke and not by the collar. The team of the labouring Oxen in this beautiful county is one of the charms of the rural landscape. A boy accompanies the ploughman and his team to drive the Oxen. He chants continually a simple melody in low notes rising to the higher. From morn to night this simple song is heard, the ploughman putting in from time to time his lower notes in happy keeping. The beasts seem charmed by the music, and from hour to hour the team may be observed in motion without a harsh word being uttered by the ploughman or his youthful companion.*

Although the Devon Ox presents a symmetry of parts which pleases the eye, yet his form is not precisely that which the breeder seeks for in an animal destined to fatten quickly and arrive at great weight. His neck is too long, his chest is too narrow,

* M. YOUATT, Library of Useful Knowledge.